THE EFFECT OF WATER POLICY IMPLEMENTATION AT THE LOCAL COMMUNITY IN ZAMBIA: EXAMINING THE ROLE OF NATIONAL AND LOCAL INSTITUTIONS CONCERNING ZAMBEZI

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Abstract

To capture the 'real world' experience of institutions and policy within the Zambezi rural basin, the study highlights differences in perceptions of the policy and institutions of the water sector between those involved in management of the water sector and those using water for their livelihoods.

The study is situated within the qualitative paradigm; its unit of analysis is the participants (members of households, policy makers and members of the Village Water Committee). The study has applied a grounded theory methodology (semi-structured interviews). Forty participants were interviewed in the Zambezi rural basin.

The research highlights that, the National Water Supply and Sanitation Council as a national regulatory institution has not yet fully provided support in terms of regulatory framework that would enable the rural water sector to sustain the demand of the Zambezi rural basin of Zambia. Despite this, the National Water Supply and Sanitation Council have made some key progress in developing the suitable guidelines within the regulatory framework significant in the management of water sector. The study indicates that institutions such as the Village Water Committee are considered to be crucial for strengthening the water sector in the Zambezi rural basin if given a suitable legal status for its operational water activities. Furthermore, water supply and demand disparity among households in the Zambezi rural basin remains a challenge to be addressed. The study further highlights policy and institutions in terms of their effects on the quality of water and health status of households remain a major concern for the citizens.

Keywords: Water Policy, Institutions, Effect, Community

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DECLARATION

I declare that this thesis is substantially my own original work and has not been submitted in any form for an award at any other academic institution. Where other sources of information have been used, they have been acknowledged.

Signature ____Patrice Kandolo KABEYA

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TABLE OF CONTENTS

Abstract i

Acknowledgement ii

List of Tables xii

List of figures xiii

Acronyms xiv

Chapter 1: Introduction 1

1.1 Overview 1

1.2 Background identifying the problem 1

1.3 Existing Case Studies 2

1.4 Research Problems 3

1.5 Research Question and Objective 4

1.6 Conceptual Framework 5

1.6.1 Institutions and policy and how do they related theoretically 6

1.7 Significance 10

1.8 Research Methods and Analysis 11

1.9 Context 12

1.10 Major Areas of Contribution 13

1.11 Limitations 13

1.12 De-limitations 14

1.13 Outline of chapters 15

Chapter 2: Literature Review on Institutions and Water Policy 16

2.1 Overview 16

2.2 Conceptual framework 16

2.2.1 Concepts 19

2.2.2 Institutions 20

2.2.3 Water policy 21

2.2.4 Household 22

2.2.5 The Effect 23
2.3 Explanation on the operationalisation of concepts 24
2.4 The link and gaps between the thesis conceptual framework and other studies 25
2.5 The theory of institutional analysis 28
2.6 Institutional Arrangements 32
2.6.1 Public Agencies 35
2.6.2 Private Sector in the Water Sector 40
2.6.3 Nongovernmental Organisations in the Water Sector 46
2.6.4 Gender dimensions of water policies 49
2.6.5 How do We Determine Institutional Performance in the Water Sector? 52
2.7 Water Policy. 53
2.7.1 Has the Water Policy Failed the Poor Citizens? 57
2.7.2 What Happens When Countries have Good or Bad Policies? 58
2.7.3 How Does Water Policy Influence the Water Supply? 60
2.8 The effect of Water Policy and How to Assess or Evaluate Such effect 64
2.9 Chapter Summary 76
Chapter 3 Methodology 77
3.1 Overview 77
3.2 General Perspectives of Grounded Theory Methodology 78
3.3 Data Collection and Analysis in Grounded Theory 79
3.3.1 Water Policy Officials 79
3.3.2 Members of the Village Water Committee and Households 79
3.3.3 Interview Coding as Part of the Logical Process 81
3.3.4 Developing Coding Categories 84
3.3.5 Substantive and Formal Theory 86
3.3.6 Writing Memos 87
3.3.7 Objectivist and Constructivist Approaches to Grounded Theory Methodology 88

3.3.8 Limitations of the Grounded Theory Methodology 90
3.4 Justification of the Qualitative Case Study 90
3.5 How Was the Data Collected? 91
3.6 Design of the Research Fieldwork 99
3.6.1 Purposive Sampling 101
3.6.2 Initial Interview 101
3.6.3 Criteria Used in Selecting Participants 104
3.6.4 Contacting Participants 104
3.6.5 Field Observations 104
3.6.6 Document Review 106
3.7 Study Location – Zambezi Rural Basin 107
3.8 Ethical Issues 110
3.9 Reflective Self-Critique 113
3.10 Field Constraints and Other Limitations 114
3.11 Chapter Summary 115
Chapter 4: Data Analysis 117
4.1 Overview 117
4.2 Coding 119
4.3 Self –critique of the interview sample and its reliability 125
4.4 Memo Writing 126
4.5 Use of Software for Data Management and Analysis 127
4.5.1 Transcribing Interviews and Importing into NVivo 128
4.6 Validity 128
4.7 Chapter Summary 131
Chapter 5: Policy and institutions: Background in the Zambezi context 132
5.1 Introduction 132
5.2 Country Profile 132

5.2.1 The Administrative Structure in Respect to Population Coverage per Province 133

5.2.2 The Status of Water Resources 136

5.3 Genesis of Water Policy and Institutional Reforms 138

5.3.1 Water Policy Development 139

5.3.2 Institutional Framework 142

5.4 Challenges in the Water Sector 146

5.5 Chapter Summary 148

Chapter 6: Institutions in the Water Sector 149

6.1 Introduction 149

6.2 What Are the Key Institutions in this Sector? 149

6.2.1 The National Water Supply and Sanitation Council (NWASCO) 150

6.3 The Village Water Committee 175

6.3.1 How Was the Village Water Committee Constructed? What Is the Source of its Legitimacy? 176

6.3.2 How Can the Village Water Committee be Evaluated in Relation to its Performance? What Does This Village Water Committee Do? How Does it Execute its Functions as a Voluntary Organisation? Do Citizens with Better Village Committee Get More Water or Pay Less? 179

6.3.3 How Do We Evaluate the Village Water Committee In Relation To Policy Implementation? 188

6.3.4 What Distinguishes the Successes from the Failures? How Do We Determine What Is Success and What Is Failure? 191

6.3.5 What Do Citizens Do About Affordability and Costs? 195

6.3.6 Do Citizens Have Other Institutions in Water Sector Management, Apart from the Two Institutions Discussed Above? 204

6.3.7 What Are the Key Lessons Learned Within the Institutional Framework? 206

6.4 Chapter Summary 210

Chapter 7: Water Policy Framework 212

7.1 Water Policy Reforms 213

7.1.1 The Policy and Legal Framework 216
7.1.2 Factors Hindering Decision-Making in the Water Sector 218
7.1.3 How Could the Legal and Regulatory Policy Framework be strengthened? 222
7.1.4 What Are the Likely Water Policy Challenges for the Rural Water Supply? 229
7.1.5 What Could the effect of Policy for Institutions be in Terms of Role Clarification? 234
7.1.6 What are the Main Issues with the Currently Implemented Water Policy Reforms? 236
7.1.7 What Are the Lessons Learned from Water Policy in the Zambezi Rural Basin? 241
7.1.8 What Are the Risks and Uncertainties in Water Policy? 244
7.2 Chapter Summary 248
Chapter 8: effects of water policy and institutions on the status of water supply facilities and the health of poor citizens 250
8.1 Introduction 250
8.2 What is the Current Status of Water Supply Facilities? 251
8.2.1 How can we Evaluate the effect of Policy and Institutions on the Health of Citizens? 264
8.2.2 Household Water Costs 269
8.3 Chapter Summary 270
8.4 Revising the Framework of Analysis 270
Chapter 9: Conclusion and Recommendations 278
9.1 Overview 278
9.2 Major Findings 278
9.3 Water Policy 279
9.4 What are the Implications for the Research Question? 280
9.5 Implications for policy and practice 282
9.5.1 Implications for policy 283
9.5.2 Implications for practice 283

9.6 What are the Implications for Further Analysis and Research? 284
9.7 Study limitations and future areas of research focus 285
9.7.1 Study limitations 285
9.7.2 Future areas of research 286
9.8 Contributions of the study 288
9.9 Self-reflection on the phd studies 291
References 295
Appendix 1: research Consent Form for the Participants 334
Appendix 2: Organisational structure-National Water Supply and Sanitation COUNCIL (NWASCO) Management level 336
Appendix 3: The administrative structure of the Zambezi rural basin Village Water Committee in Zambezi 337
Appendix 4: Sample of Interview for Water Policy 338
Appendix 5: Sample of Interview for the Households 343
Appendix 6: Interviews Coding 347

FIGURE 1 : PROCESS OF CODING DEVELOPMENT 84
FIGURE 2: MAP OF ZAMBEZI RURAL BASIN 108
FIGURE 3: MODEL OF INTERACTIVE DATA ANALYSIS 118
FIGURE 4: INVERSION OF INSTITUTIONAL SUPPORT IN THE WATER SECTOR 209

LIST OF TABLES

TABLE 1: CURRENT ISSUES IN WATER SUPPLY 61
TABLE 2: KEY SUMMARY OF THE MAIN LITERATURE REVIEW 67
TABLE 3: KEY PARTICIPANT TARGET GROUPS 94
TABLE 4: INTERVIEW QUESTIONS 95
TABLE 5: THE DESIGN OF THE RESEARCH FIELDWORK 100
TABLE 6: CODING PROCESS 121
TABLE 7: MEMO WRITTEN AFTER INTERVIEWING A POLICY MAKER FROM THE NWASCO 126
TABLE 8: POPULATION DISTRIBUTION PER PROVINCE IN ZAMBIA FOR THE PERIOD FROM 1990 TO 2015 WITH PROJECTION ESTIMATE. 133
TABLE 9: STATUS OF POPULATION WATER COVERAGE PER PROVINCE FROM 1991 TO 2006 137
TABLE 10: PHASES OF WATER SECTOR REFORM IN ZAMBIA 141
TABLE 11: INSTITUTIONAL FRAMEWORK – WATER MANAGEMENT ROLES AND RESPONSIBILITIES 145
TABLE 12: GUIDELINES 161
TABLE 13: IDENTIFICATION OF FACTORS OBSTRUCTING WATER DECISION-MAKING PROCESSES AT THE POLICY IMPLEMENTATION LEVEL 218
TABLE 14: STATUS OF HOUSEHOLDS CONNECTED TO WATER IN THE ZAMBEZI RURAL BASIN 231
TABLE 15: POLICY MATRIX FOR THE WATER SECTOR 239
TABLE 16: COMPARATIVE ANALYSIS OF THE TWO OPTIONS FOR EFFECTIVE MANAGEMENT OF WATER SECTOR. 246
TABLE 17: THE STATUS AND AVAILABILITY OF WATER SUPPLY FACILITIES IN THE ZAMBEZI BASIN 254
TABLE 18: RESPONSES OF THE HOUSEHOLDS TO WATER POINT INTERVENTIONS IN THE ZAMBEZI RURAL BASIN 267
TABLE 19: PAYMENT MODES FOR HOUSEHOLDS 269
TABLE 20 SUMMARY OF REVISIONS TO THE FRAMEWORK OF ANALYSIS 276
TABLE 21: CONTRIBUTIONS OF THE STUDY 289

List of figures

FIGURE 1 : PROCESS OF CODING DEVELOPMENT 84
FIGURE 2: MAP OF ZAMBEZI RURAL BASIN 108
FIGURE 3: MODEL OF INTERACTIVE DATA ANALYSIS 118
FIGURE 4: INVERSION OF INSTITUTIONAL SUPPORT IN THE WATER SECTOR 209

Acronyms

AICD	African Infrastructure Country Diagnostic
CIDA	Canadian International Development Agency
COMESA	Common Market for Eastern and Southern Africa
CSO	Central Statistics Office
CUS	Commercial Utilities
DFID	Department for International Development
DISS	Department of Infrastructure and Support Services
DTF	Devolution Trust Fund
DWA	Department of Water Affairs
ECZ	Environmental Council of Zambia
EU	European Union
GRZ	Government of the Republic of Zambia
ICED	International Conference on Environmental and Development
ICWE	International Conference on Water and Environment
ID	Institutional Decomposition
IFAD	International Fund for Agriculture Development
IPPD	Investment Promotion and Private Sector Development
IWRM	Integrated Water Resources Management
IWSSD	Integrated Drinking Water Supply and Sanitation Decade
JICA	Japan International Cooperation Agency
MACO	Ministry of Agriculture and Cooperatives

MAFF	Ministry of Finance and National Development
MENRT	Ministry of Environmental, Natural Resources and Tourism
MEWD	Ministry of Energy and Water Development
MHLGA	Ministry of Housing and Local Government Authority
ML	Ministry of Land
MLGH	Ministry of Local Government and Housing
MOH	Ministry of Health
MWS	Ministry of Works and Supply
NGOS	Non –Governmental Organisations
NWASCO	National Water Supply and Sanitation Council
PCU	Programme Coordination Unit
PUWSS	Peri-Urban Water Supply and Sanitation
PUWSS	Peri-Urban Water Supply and Sanitation
RDCs	Rural Development Committees
RDCs	Rural Development Committees
SADC	Southern Africa Development Community
SIDA	Swedish International Agency for Cooperation
SSA	Sub- Saharan Africa
SWOT	Strength, Weakness Opportunity Threats
UN	United Nations
UNCED	United Nations Conference on Environment
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment

UNCLNOUIWC	United Nations Conventions on the Law of Non-Organisational Uses of International Water Courses
UNCW	United Nations Conference on Water
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNWC	United Nations Water Conference
USAID	United Agency for International Development
WB	World Bank
WQTG	Water Quality Task Group
WRAP	Water Resources Action Programme
WRM	Water Resources Management
WSDG	Water Sector Development Group
WSRSU	Water Sector Reform Support Unit
WSS	Water Supply Sanitation
WSSD	World Summit on Sustainable Development
WVC	Water Village Committee
WW C	World Water Council
WWAP	World Water Assessment Program
WWAP	World Water Assessment Programme
WWC	World Water Commission
WWP	World Water Partnership
WWV	World Water Vision
ZIMCO	Zambia Industrial Mining Corporation

CHAPTER 1: INTRODUCTION

1.1 OVERVIEW

The aim of this study is to examine the role of institutions and policies in the management of water resources. Despite emphasis in developing countries on adopting measures that could improve the water sector**,** the focus of implemented policies did not address the issue of water for the poor**,** and this has remained a critical challenge for policy makers and academics to address (Bond, 2004, p.56). Policy and institutional relationships that could sustain the rural water sector were ignored, and, consequently, developing countries did not focus on how the water sector could be managed in rural areas (Bond *et al*., 2002, p.67). It was never clarified which type of institution and policy would be best suited for water management. Individual countries formulated policies according to their own developmental agendas (Douglas, 1987) and policy makers did not consider what constituted a good institution or policy, or how these could help support the rural water sector (Botes *et al*., 2003, p.47). This neglect has damaged rural water sector infrastructure, making its performance questionable. This introductory chapter will discuss the background of the study, including the research question, objective, scope, basic framework, methodology (in brief), and intended contribution. This chapter also provides a brief outline of the thesis. The next section will discuss background.

1.2 BACKGROUND IDENTIFYING THE PROBLEM

Water institutions and policy play an integral role in the provision of water services (Heyns, 2003, p.25), but how do policies and institutions help in this provision? Water policy and institutions are required to empower communities to decide how they might best solve their problems of water supply and demand; policy guides the water sector while institutions are designed to deliver the required services (Blackman *et al.*, 2004, p.7). The interplay between them requires significant understanding of the water supply in the rural areas; it was found that there was a strong link[1] between water supply problems and weak link to the policy and institutions in place to correct them, which makes the

[1] Strong link implies a greater correlation while a weak link implies they are not connected

water sector inefficient (Bow *et al.,* 2011). If these challenges are not addressed, future water service provision will be constricted. Taking into account the issues around policy and institutions, this empirical study will investigate the way policy has been applied and how institutions have developed in the context of the Zambezi rural basin in Zambia. Policy and institutional studies are not properly situated within empirical field work studies; this dearth of information has driven the researcher to address two critical issues: what exactly accounts for institutional and policy provision in the Zambezi rural basin; and how have institutions met water requirements of the community? The larger aim is to determine if these water sector institutional practices can be applied to other sectors, and how relevant they might be for different parts of the country. It is intended that this focus will create a better understanding of how significant policies and institutional practices might provide an enabling environment for more effective water activities. The next section discusses the existing case studies in the Zambezi rural basin.

1.3 EXISTING CASE STUDIES

There have been recent studies that examine the impacts of climate change in the irrigation sector and how it will influence water availability in the Zambezi rural basin, which covers Zambia, Zimbabwe and Mozambique (NWASCO, 2010, p.34). For instance, study by Fant *et al.* (2013, p.36) principally focused on the impact on biophysical events such as surface water supply, crop production, flooding, and hydropower generation in the Zambezi rural basin. The NWASCO (2007b) highlighted that climate change will affect rainfall and reduce water supply, which would negatively affect crop production. This will lead to an increase in the demand for irrigation and, as a result, in the coming years, water supply will become a crucial issue for policy makers. Another study by Schlosser and Strzepek (2013, p.27), 'Regional Climate Change of the Greater Zambezi river basin'*,* specifies that variations in climatic conditions have consequently affected water precipitation, which is a significant challenge that needs to be addressed at a regional level. Countries in the Zambezi river basin have had to develop mitigating strategies to deal with predicted droughts. If droughts do occur, this will affect the water supply of the entire region. The key problem with these existing studies is that, although they recognised the

source of the identified impacts as climate change, they do not adequately assess the factors at the centre of these impacts, such as the possible role of ineffective policies and institutions at a rural level. This study addresses policy and institutions, specifically in Zambia (one of the countries that are part of the Zambezi river basin), in order to further understand the issues around water supply. The next section will discuss the research problems.

1.4 RESEARCH PROBLEMS

Water policies and institutions have undergone a major shift in paradigm in recent decades, due to awareness that water supply must match the demands of a growing global population (Basson, 2010, p.27). A report by the UN (2012, p.13) highlights that there are 784 million people (11 per cent of the world's population) without access to safe drinking water or sanitation facilities. The UN report also indicated that in Sub-Saharan Africa (SSA), 40 per cent of the population did not have access to water (ibid). A lack of effective policy and institutional structure has contributed to the global water crisis specifically in developing countries (Berkoff, 1997, p.4). Various international conferences, such as the United Nations Water Conference 1977 and the Hague Ministerial Declaration (2000) have highlighted this water crisis while emphasising that the threat to the water sector is not new and actions have been developed to deal with this threat (Baietti *et al*., 2006). The crisis as recorded by the International Drinking Water Supply and Sanitation Decade (1981–1990), the International Conference on Water and the Environment (1992) and the Earth Summit (1992) consists of two key issues: providing clean water to the citizens; and managing risk associated with the management of water sector. For instance, risks linked to physical water shortage, quality and the wider implications of policy and institutions in the water sector (Wester *et al.,* 2005, p.65). Although this crisis has been recognised at an international level, the number of people without access to clean drinking water increases on a daily basis; therefore, policies have to be revisited to determine how they can positively affect the provision of water (Bond 2004.p.10) and institutions have to be examined to see how they will implement these appropriate policies (Bhatia and Falenmark, 1992, p.11). Understanding the role of policy and how it affects institutions in strengthening water service delivery is crucial for communities.

Bruns and Meinzen –Dick (2005, p.28; Bruns *et al* 2005)) specified that inadequate water policies and institutions have a negative impact on communities in terms of water provision and must be significantly improved. This reflects the findings of a study that investigated the Zambezi rural basin in 1999 it was found that water policy and institutions at a community level were not adequately defined. This obscurity poses a challenge as to how water supply could be provided in the rural areas of the Zambezi basin and can only be eradicated if institutions and policies are better clarified and linked to the rural water environment (Meinzen –Dick and Pradham 2002; UNEP2004). Based on this challenge, this thesis will study two institutions with different ways of implementing policy: the Village Water Committee[2] and the NWASCO. In application and scope, the study is eclectic rather than exhaustive; this has permitted a pragmatic view on policy and institutional knowledge applied in the Zambezi rural basin and an understanding of the progress made in the water sector. It was also impossible to adopt an exhaustive approach due to time constraints and the need to analyse the two institutions' main components (water laws and administration, broadly). The next section will address the central research question and fundamental objective of this study.

1.5 RESEARCH QUESTION AND OBJECTIVE

Based on the review of relevant literature on water policy and institutions, it is revealed that the water sector faces great challenge, especially in the rural areas where water supply is constrained to improve in the Zambezi rural areas over the previous years. However, it has brought in water supply constraints leading to competition of water among various water users. In the present context, there is a growing consensus that there is need to determine the significance of water policy and institutions in the water sector for water supply. While water policy and institutions are needed to and what should be analysed are the issues of water policy and institutions affecting the poor households water supply. The present study aimed at filling up the gaps, therefore, given

[2] In general, Village Water Committees (VWCs) in a number of countries were established as part of the World Bank programme in order to sustain the water sector activities. However, in Zambia, they were established to promote the activities of water sector in terms of its management. Their establishment came as a result of people taking their own initiatives to create such institutions.

the background and key problem addressed above, there seems to be an imminent need to understand water policy and institutions in the Zambezi rural basin on water supply. The main aim of the study is:

- To explore the possible effect of policy and institutions on water supply in rural areas; and
- Other objective includes the review of relevant literature on policy, institutions and their effects and exploring the implications of this study's findings for future research.

Hence, the central question addressed in this study is:

- To what extent have water policies and institutions have effects on the delivery of water provision services to rural communities in the Zambezi rural basin?

The research question is framed to understand the water sector in the Zambezi rural basin of Zambia, with regard to examining the main water policy and institutional impact at a household level. This is important as empirical evidence at the grassroots level can be instrumental in determining a policy and institutional shift that is based on community. Consequently, the possibility of human intervention is also recognised.

To answer the above research question, the aim of this study is to develop and test a conceptual research framework and develop a theory using grounded methodology (based on relevant theories and literatures) that assesses water policy and institutional effects on the poor in the Zambezi rural basin. The next section will briefly discuss the study's conceptual framework.

1.6 **CONCEPTUAL FRAMEWORK**

The conceptual and theoretical literature pertaining to water policy, institutions and impact is limited in terms of literature providing key aspects of policy and institutions to understand the problems of water sector in the rural area of Zambezi. The study has developed a conceptual framework adapted from Saleth and Dinar (2004, p.56), Bandaragoda and Rehman (1995.p.30), p.30), and Anand (2010, p.12) to empirically verify policy and institutional impact in the rural water sector (see chapter 2). Saleth and Dinar's conceptual framework is

based on a deconstruction of legislation and policy. Saleth and Dinar 's framework also looks at specific aspects that support the water sector, for instance, the water policy, water law and water organisation focused exclusively on determining the institution performance within a broader perspective rather than in narrowed perspective. Saleth and Dinar framework does not highlights the direct link among its various components such as water policy, water law and water organisation in order to deal with the problem of imbalance between water supply and demand in rural area context. Bandaragoda s conceptual framework focuses on the management of water in the river basin via four key components: physical systems, water accounting, socio-economic situations, and performance based on institutional diagnostics. Anand's conceptual framework is based on the delivery of water to citizens; it assesses policy and institutions through a focus on the people's well-being and their entitlement to water supply. These diverse conceptual frameworks differ in their methods of analyses but all focus on water sector institutions and policies. They constitute the basis of an analysis for the Zambezi rural basin water sector.

1.6.1 INSTITUTIONS AND POLICY AND HOW DO THEY RELATED THEORETICALLY

Institutions are defined as entities which reflect a specified configuration of legal precepts, policies, rules, conventions and agreed practices. These are well structured and also synergised and embedded operationally. Like other institutions, institutions in the water sector have their institutional structure, including their specific institutional environment, guided by rules (Saleh and Dinar, 2004).

The water institutional environment is typically characterised by three key institutional components, which are water laws, water policies and water administration; however, it is important to note that the institutional component does not only cover the formal and macro-level arrangements, but also the informal and micro-level arrangements such as those reflected in local customs, conventions, and informal contracts (North 1987 ; 1990; Mosley 1996). Similarly, water policy is used to provide direction on how the water sector is to be directed in order to accommodate water users, encourage user participation,

improve the water supply, shed light on water pricing, and recover costs on water. While institutions are considered in the context of regulatory mechanisms, they are also considered in the context of the organisational structures which are important to the management of the water sector (Ostrom *et al.,* 1993). However, in the context of the Zambezi basin, institutions reflect written and unwritten rules or principles that have been specifically designed to govern and constrain behaviour. They also help to facilitate access to water and implement sanitation services. Additionally, they help to provide policy orientations and address concerns in the context of social needs. However, they also have the ability to impose restrictions on human behaviour; for instance, they define legal, moral and cultural boundaries and are able to separate legitimate from illegitimate activities (Republic of Zambia GRZ, 2003; African Development Fund(ADF 2006).

In this context, informal institutions have emerged as a result of weak formal institutions and on account of antagonistic goals and objectives. They exist because of the failure of formal institutions to achieve the outcomes expected of them. Informal institutions are substitutes for formal institutions. However, Ostrom (1992) argued that, in this context, when it comes to both kinds of institutions (formal and informal), it is necessary for these two institutions to develop a mutual interaction of significant importance to the fostering of synergy in relation to the development and management of the water sector. However, Perret (2002) emphasises that the weakness and instability of formal institutions create an environment which brings in substitutive and competing informal institutions, which are key features of developing countries and transitional economies. Powell and Paul (1991) said that, in this way, promoting a complementary system which accommodates informal institutions will reflect the development of stable institutional settings. Institutional interaction is important because it determines the outcomes of institutional reform within a society based on the interdependence and compatibility of formal and informal institutions. For instance, in the scenario where institutional compatibility is attained, informal institutions will be able to adopt law-abiding behaviour. In the case where policies are not designed to meet the aspirations of citizens in accordance with social norms, it will then create an environment in which tensions will emerge with formal institutions. Proag (2006) and Protokopy

(2004) said that, in this way, promoting a system which complements and accommodates informal institutions will allow for the development of a stable institutional setting.

However, institutions overall define the procedures for water management and coordinate government policies related to the water sector. In the context of this study, water policies explain the process of addressing water provision, water uses and water sustainability decisions in both urban and rural areas. Water provision will include prioritising the identification and accessibility of water for citizens, and its distribution (production and supply) to citizens (Boelens and Hoogendam 2002). However, water policy is meant to set the right rules in order to determine how water will be allocated to various populations (Blomguist 1992). Water policy will lead to the best management practices in this regard; best management practices will be identified, subject to evaluation and modification, and disseminated by institutions (Blomguist 1992). Postel and Richter (2003) emphasise that, in such a context, institutions will be more accountable in the sense that they have implemented policies and guided the water sector's success or failure in relation to the provision of water services. However, institutions and policies are both interlinked and reflect the outcomes of water management (see chapter 6).

Although the conceptual framework of this study has looked at the two key pillars of policy and institutions, it has added a third pillar that is missing from the diverse conceptual frameworks already identified. The third pillar that is missing will specify the effects of policy and institutions on water supply at the households. The pillar will clarify how water has been managed in the Zambezi rural area and how policy and institutions have contributed to its mode of management at the households. The examined conceptual frameworks have permitted the researcher to understand how policies and institutions are the key drivers of strategy implementation in the water sector in the Zambezi rural basin; these drivers have to be part of the overall water management approach in order to create an effective and sustainable water sector.

In the context of this study, there are two kinds of institutions which are formal and informal and are briefly discussed below:

- **National Water Supply and Sanitation Council (NWASCO)-** It is a formal institution established to sustain water supply and sanitation and at the same time balancing commercial water and social consideration. It is the sole institution regulating the water sector throughout the country. It is responsible for the management of water resources at country level
- **Village Water Committee –** it is an informal institution established by communities to support the provision of water activities in the area. This type of institution aimed at ensuring that water resource is appropriate managed and all people have access it in a transparent way. However, it is very complex for this type of institution to be part of the common management of the water resource in its current set up. It's also lacks effective rules which have contained it to function correctly and attain its objectives.

In my view, the two institutions do differ from the way there are being governed or self –governed and the intended objectives. For instance, the NWASCO has different rules which govern it as compare to the Village Water Committee which have different kinds of rules. The difference in rules make these institutions either become more sustainable or not.

Ostrom (1999) specified that for the formal and informal institutions to function, a set of principles has to be designed to reflect institutional characteristics of user organised systems. Ostrom also indicated that there are important eight principles which are useful for the management of common resources which include water resource:

- Clearly defined boundaries
- Congruence between appropriation and provision rules and local conditions
- Collective-choice arrangements
- Monitoring
- Graduated sanctions
- Conflict –resolution mechanism
- Minimum recognition of rights to organise
- Nested enterprise

Bruns and Meinzen-Dick (2000) argued that the absence of water institutions in rural areas and the lack of effective policies have been identified as the main causes of the water crisis in the rural context. One of the key limitations of this study's conceptual framework is that its application requires a better understanding of other aspects of the environment in order to investigate how these results could be evaluated in similar contexts. However, the study provides an opportunity for future research and investigation. The next section will highlight the significance of this study.

1.7 **SIGNIFICANCE**

It is significant to understand institutions in a rural context for one specific reason. Firstly, institutions like the Village Water Committee and the NWASCO could play an important role in supporting the process of supplying water through effective regulation and implementation of strategy. However, rural water institutions are still ignored in many studies, and investigating these institutions provides an opportunity to understand the challenges faced in the rural water sector.

Baietti *et al.* (2006, p.34) explain that the role of water policy and institutions in creating the necessary conditions for water supply have been addressed in diverse regions, for example, in India and in the Southern African region. Banergjee *et al.* (2008, p.5), however, argue that institutions haven't yet reached the stage at which they would be able to effectively implement water policy in both urban and rural areas, and, consequently, the rural sector has suffered tremendously. The neglect of rural institutions in existing studies has contributed to the limited knowledge of these institutions' performances and their impact on citizens and the water sector (Bruns and Meinzen-Dick**,** 2003).

Saleth and Dinar (2004, p.24) proposed an institutional framework that could analyse water law, water policy and water organisation ideas and trends for future water management across the world. Similarly, this study can have valuable input in substantiating the water sector with empirical evidence from the Zambezi rural basin. It can enrich the stock of existing literature and inform policy and institutions in the rural water sector in other developing countries. It can serve as a reference for policy makers, academics and researchers involved in finding sustainable solutions to water sector problems. Most importantly, this study can provide better insight into the significance of policy and institutions in improving rural water services and providing solutions to water problems faced by many households. Having highlighted the significance of this study, the next section will discuss the kinds of research methods and analyses used to enable an understanding of the subject matter.

1.8 **RESEARCH METHODS AND ANALYSIS**

The overall aim of research was to effectively investigate and test the conceptual framework in order to understand the issues around institutions and policy. Grounded theory methodology was chosen and applied; this will be discussed further in chapter 3. In brief, primary data was extracted from 40 participants as part of the qualitative testing for the study. Data was obtained from three categories: the Village Water Committee, households, and policy makers in the Zambezi rural basin in the developing country of Zambia. After the interviews were transcribed, only 35 interview field notes were used in the final analysis. Initially, data was analysed using NVivo 10 (2012), which is a qualitative data analysis software package that analyses interview transcripts (Douglas, 1985, p.15). The data was grouped according to different themes, which enabled discussion and interpretation of different phenomena (Chih, 2003, p.10). The qualitative findings are intriguing and authentic, with fresh insights into the development of water policy, institutions and the effect of their relationship. However, it is clear that the qualitative approach is effective in areas where the interview method only works in areas where the interviewers and his qualifications are trusted (Hacking, 1999, p.123). This research also used a documentation review as part of the data collection process to supply additional data within qualitative research. The documentation review allowed

the researcher to determine prior studies, what those studies did, and the value attached by the community. Among documents reviewed were government documents, policy papers, internal documents from water institutions, statistics obtained from the Office of Central Statistics (OCS) and reports from international agencies such as the UN and NGOs. These diverse documents played a key role in answering the research question. Without them, the researcher would not have been able to gain a history of the water sector, which was used as context to strengthen the findings of the thesis or supplementing the arguments derived from interviews. The data derived from the documentation review provided a strong basis for validity. Another method used was field observation, which provided good quality data; the researcher observed how participants spoke about institutions and policy in the water sector and what they perceived their roles to be in relation to water supply. The next section discusses the study in its appropriate context.

1.9 **CONTEXT**

A review of existing literature has revealed that no attempt has been made to explore policy, institutions and their effects impact in the rural context of developing countries. Similarly, studies on institutionalism and policy have overlooked the area of water supply in rural areas (Hall and Lobina, 1999, p.12; Meinzen-Dick *et al* 2004). This study aims to understand the present water situation in the Zambezi rural basin.

Furthermore, a detailed review of the literature revealed that theoretical studies on policy and institutions have ignored its relation to the water sector, certain works do exist but they need to investigate the phenomenon in greater detail (Hamstead, 2009, p.67; Hacking 1999). Consequently, this study has made a rational choice to incorporate institutions and policy issues within the proposed conceptual framework of the Zambezi rural basin in order to adequately deal with the problems of the water sector. The next section discusses this study's major areas of contribution.

1.10 MAJOR AREAS OF CONTRIBUTION

This study expects to contribute in a number of ways to the existing body of knowledge within the field. The major areas of contribution include the conceptual schema proposed in this study which is well defined and fits the data well in explaining the link between the three pillars (water policy, institutions and effect) and their contribution to water sector in the rural context. Qualitative information derived from fieldwork provides new insights for policy and institutions, and this study contributes to literature by incorporating data of developing countries into empirical generalisations of the role of policy and institutions in the water sector. Further details of these contributions are discussed in chapters 6, 7, and 8. The next section discusses limitations of the study.

1.11 LIMITATIONS

As far as research is concerned, there will always be certain limitations. This study has encountered certain challenges in the data collection process. The first challenge was gaining approval to access these institutions (Village Water Committee and the NWASCO) and coordinating with different households within a specified time schedule. Secondly, five interview transcripts had to be dropped as they were incomplete (in terms of information) and, if included, could have had a negative impact on the research findings, particularly during data analysis.

One of the major limitations of the study is my limited focus on gender issue. I am aware that in the water sector, gender is very important because women bear the main burden of failure of access to water. This is evidenced in the study by (Boelens and Hoodgendam, 2002, p.12) which highlighted the need to incorporate gender issue within policies and institutions which has not yet been investigated in many studies.

In my study design and research question I was focusing on institutions and policies, I was hesitant to include the gender issue as a specific dimension. While I was doing field work, I was trying to be open and included the views of both men and women; I did not specifically have an idea to incorporate the

gender issue in the study. If I was to do this study today, obviously I would approach it differently. The limitations of this study are discussed in detail in chapter 3 and 9 respectively. The next section discusses the delimitations of the study.

1.12 DE-LIMITATIONS

Due to the complex nature of this study, certain choices that related to method and content had to be taken in to consideration. For instance, the researcher did not use the quantitative approach to research, as he was only interested in the findings via a qualitative method. If the researcher had used the quantitative method, it would have been impossible to develop fresh insights on policy and institutions and thus would have limited the analysis of data. The researcher also chose to review only select literature; he did not, for instance, review literature on institutional transactions costs, pollution control/environmental preservation, Trans- boundary water issues and water markets. Although these topics have very few arguments on policy and institutions, their focus was not relevant to this study, and, if included, the focus and methodology of the research would have been compromised. In reference to the interview sample, the researcher did not study members of nongovernmental organisations (NGOs) or private water providers, as the study was concerned with understanding the perception of policy makers, households, and members of the Village Water Committee.

This study identifies the key issues of policy and institutional systems within the water sector; it has analysed the impact of these policies and institutional outcomes in relation to water service provision at a household level. The researcher also carefully selected participants who have experience in the water policy and water institutional management. The researcher selects participants who are the main water beneficiaries in order to draw their experience. The selection of participants will allow the researcher to collect which is useful for the purpose of the study. The next section outlines the organisation of the study and the contents of each chapter.

1.13 OUTLINE OF CHAPTERS

This thesis consists of seven chapters, including references and appendices. Chapter 1 has provided an overall introduction to the research background and problem, the objective and research question.

Chapter 2 is a literature review, which presents existing knowledge and integrates it into the context of water policy and institutions. A gap in knowledge is identified and this forms the basis for the specific research question of this thesis.

Chapter 3 discusses the methodology applied to analyse water policy in the Zambezi rural basin. This chapter will present grounded theory methodology within a qualitative paradigm, based on a case study approach, methods of data collection and analysis.

Chapter 4 provides a greater understanding of how data was analysed using grounded theory methodology.

Chapter 5 gives a brief background of Zambia, its water policy and its institutions in order to understand how those institutions and policy have come about.

Chapter 6 provides empirical findings of institutions in the water sector: the NWASCO and the Village Water Committee are separately analysed.

Chapter 7 provides empirical findings on water policy in order to understand how legal and regulatory frameworks have strengthened the way water is managed.

Chapter 8 provides empirical findings on the effect of institutions and policies on water supply facilities and on citizens' health.

Chapter 9 contains a summary and conclusions of the study and implications for further research. This next chapter will assist in the review of the key literature and the study's conceptual framework.

CHAPTER 2: LITERATURE REVIEW ON INSTITUTIONS AND WATER POLICY

2.1 OVERVIEW

This review of the selected literature aims to explore the theoretical foundation underpinning water policy, institutions and their impact on the rural households. This review also consolidates relevant literature on how water services emerge in developing countries, and analyses literature pertaining to the theory of institutions and water policy. In this chapter, all the emerging issues are considered within the context of narrowing the research question, so that it focuses on a specific area of water policy and institutions.

This chapter has also drawn on a number of academic and policy documents relevant to the study, including books on water policy, institutional reports, journals on water policy, and reports on institutional management. The researcher has also considered the reviews of international reports and policy documents, including some from the World Bank, UN reports, and other selected published and unpublished (grey literature) documents and reports. In line with the overview, the aims of this chapter are: to review the relevant theories and their rational arguments in order to understand the issue of policy in an institutional dimension; and to review relevant literature in order to provide insights into the context of water policy and institution in an attempt to identify specific gaps in this study. This chapter is divided into four sections: section one will examine the concepts and conceptual framework , section two will investigate institutions , section three will discuss water policies; and section four will focus on the impacts of policy and institutions in the water sector.

The following section will deal with conceptual framework, institutional theoretical analysis, indicating its importance to the study and how it affects the water sector.

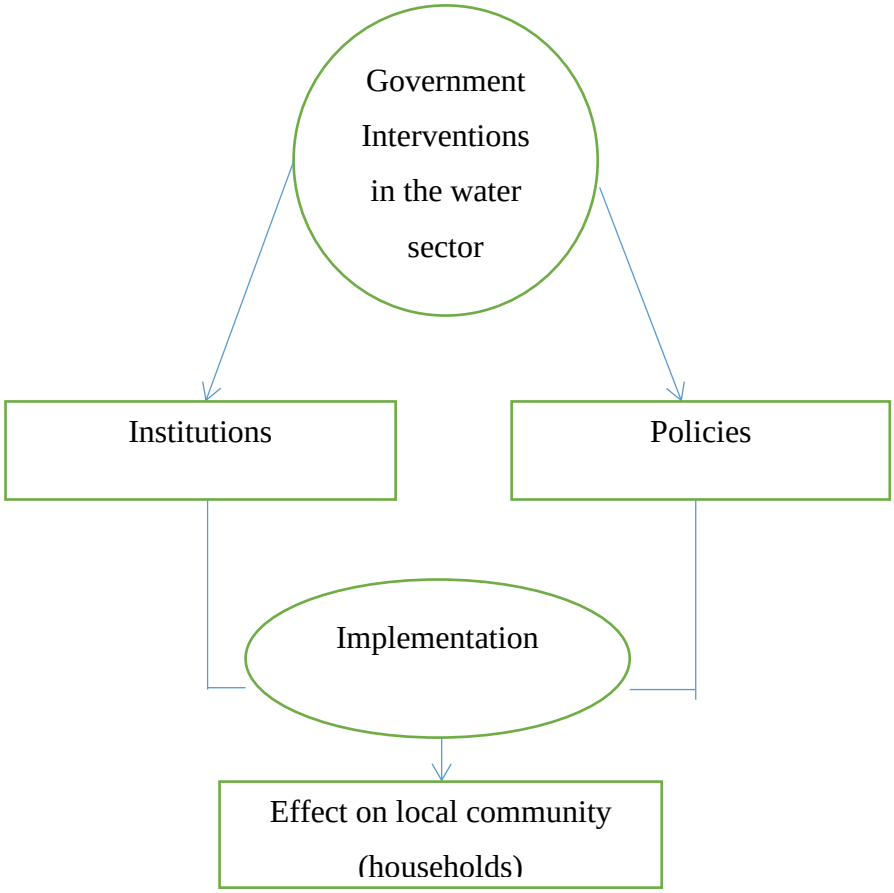
2.2 CONCEPTUAL FRAMEWORK

Later in the methodology section, it is explained that this study is based on grounded theory. Thus, a conceptual framework is not needed in such cases

because the theory is developed from the observations. However, a broad conceptual framework was used at the start of the study in order to inform researcher about the main areas of the study focus rather than influencing the development of theories related to policy and institutions. In this study; an attempt has been made to combine institutional theory with the researcher's own understanding of water supply in order to investigate in depth how water supply is managed from institution and policy perspective. Chileshe *et al.* (2005) argue that local actors, such as individuals, organisations or nations, are affected by institutional structure. In another argument, Briscoe and David (1988) indicate that even those actors who created these institutions are concerned about their management and execution. In broad terms, this concern can refer to the application of rules to help community participate in the implementation of water activities. In other argument, although institutions reflect the rules of the games, they are recognised as being the main driver of the entire packages or programmes aimed at expanding the water sector activities. It, then, implies that institutions have a role to play in any society, regardless of the nature of their creation, their roles and purposes (Chiuta, 2002). This thesis will use institutional theory to understand the role of institutions in a country's water supply; the aim will be to provide empirical evidence on the application of theory and practice.

When institutional theory is applied to water resource management, there are several major shortcomings in policies and practice; these shortcomings, especially with regard to a rural context, must be seen as more than the outcome of social processes. This study will combine institutional theory with the concept of water resource management as having a regulatory function. This theoretical standpoint enables one to analyse the role of institutions in water supply and the implementation of policy for effective delivery of water, as determined by the context in which the principal actors live. A crucial aspect of this context is the accessibility of water. This will be the framework within which this study is conducted as reflected in figure 1 below.

Figure1: Conceptual framework of the three pillars for water sector.



Source: adapted from Saleth and Dinar (2004, p.36; Saleth and Dinar 2000); Bandaragoda and Firdousi (1992.p..30), and Anand (2010, p.143).

What does the conceptual framework explains in brief? Its provide the process of how water supply is managed in terms of institutions and policy in the rural context. The first point of departure is the government which has the power to create institutions needed to drive the water sector specifically the supply side (see the narrow connecting government to institutions). From , government to institutions, institutions become important to implement policies, but importantly to note that policies are not formulated by institutions rather by government, then the government still has a greater interventions in the way water is managed in the rural areas. Then it comes to the implementation of policies by institutions, during this period of implementation or delivery, implementation is

linked directly to the vision of government in terms of water management and that the institutions helped to create conditions for regulatory framework to take place in the water sector. The determination of institutions impact on the households will be analysed to understand the role of institutions. It reflects the ultimate outcomes of policies on rural people. The concepts will help to understand the key areas of the conceptual framework. As mentioned, this framework is used mainly to help in identifying and categorising literature and useful links and not to shape the study itself which used grounded theory methodology. In this regard, the conceptual framework is used as a reference point not as the main framework in guiding the research in terms of theory and outcomes.

2.2.1 CONCEPTS

One of the principle aims of this study was to provide policy makers, researchers, and other actors with guidance on water management activities, underpinned with a theoretical perspective. To achieve this, theories identified during the literature review were investigated in greater depth. Although an extensive literature review was conducted in order to understand the gaps in the field, the amount of accessible literature was insufficient. For instance, an approach was taken, which aimed to access materials available both electronically and through hard copies. Similarly, the library's electronic materials were also accessed, as well as policy reports and other reports from international organisations such as the United Nations. These standard approaches proved to be very limited with regard to acquiring the necessary information, but they have been judged as being the most credible sources for academic exercises (Priscoli *et al* 2004). In order to deal with the shortfall in available literature, it was then necessary to search other non-academic databases with the aim of including experiences from any discipline directly linked to this field. Most of the research conducted in this way was useful, as it identified other concepts that could be used in this study. It also helped to identify what strategies should be adopted in the management of water supply. However, it failed to provide extensive material on how different countries managed water and their experiences. As the study began to further explore the literature, the researcher developed a research question that would bridge this

gap between water policy, supply, and institutions. A diverse range of literature was scanned and read; all literature that discussed water policy and institutions in some way were included. Other concepts were also discovered, such as households, impact, and implementation or delivery. Although the number of sources expanded with this approach, one of the shortcomings of the research as a whole was that there was insufficient clarity in relation to how these concepts linked to each other to provide a logical sequence that could support the study; this was evidenced in the frameworks that did exist, they were incomplete because the terminology used was inconstant. In order to make sense of these different definitions and ideas, it was necessary to explain the identified concepts in order to create tools through which the realm could be easily understood. In framing this study's conceptual framework, the researcher has considered the experiences of, and useful discussions regarding, water policy (Saleth and Dinar, 2004; North, 1990) and institutions (Anand, 2010; Saleth and Dinar, 2006) that did not address a rural context in developing countries (North, 1990; Saleth and Dinar, 2004). The researcher will explain the key elements of the conceptual framework and their operationalisation as follows:

2.2.2 INSTITUTIONS[3]

The concept of institution is used to capture knowledge and understand how it has been able to provide opportunities for interpreting and transforming knowledge. Institutions are often viewed as the rules of a game, because they are feasibly devised and mediate people's interactions. In this regard, institutions are identified as being at the fore front of people's daily lives because they direct how different services are guided and managed (North, 1990). The success of institutions seems to be very limited in terms of success so far in achieving suitable institutional mechanisms aimed at managing water supply (Wester *et al* 2003). Institutions are unable to realise desired outcomes

[3] The concept of institution is defined as the rules of games (Saleth and Dinar 2004). Rules reflect the conduct of the institutions in terms of its description. In the context of this study institution reflects the process of enabling the application of rules and laws which effectively guide the implementation of the water sector activities in achieving citizen's expectations and common objectives. It's also reflecting the capacity of institutions to manage the water sector.

because there is a lack of consistent legal and policy support necessary to integrate the delivery of rural water supply as a key element of institutional output(World Bank 2010). It is often identified that institutions have a tendency to neglect laws and policies that are important for effective water sector performance (Saleth and Dinar, 2004).

In this thesis, the application of institutional theory, as put forward by Anand (2010) and Saleth and Dinar (2004), suggests that rules are emerging as institutions develop and adapt to address water challenges; they are also influenced by the milieu in which different resources are used as well as occur. However, taking into consideration that rules are abstracts, this thesis also provides the argument that it provides the opportunity to study institutions using empirical means, which will be achieved through analysing the practices of water institutions with regard to the application of water policy (see chapter 6).

2.2.3 WATER POLICY

Bandaragoda and Firdousi (1992) state that the concept of policy can be defined as "an agreed or fixed intermixed framed decision emanating […] from top government authorities for effective management of institutions and the sector involved". Government creates policy and establish mechanisms for its implementation. Although, effective management is the top priority from government perspective, it has to ensure that the right policy and institutions are put into place to improve water supply. If government has the robust policy and institutions, but it does not necessarily means it will lead automatically to improve water supply. What is needed is that policy has to be implemented in the context of people needs.

[4] The study by Saleth and Dinar (2004) demonstrates that for a policy to be effective, it must take into account the likely challenges that need to be overcome within a specified period. Based on a specific decision, it should also know how to deal with the key actors involved in the process, such as households and others, in order to meet the requirements of the people. in this

[4] The concept of policy in the context of water reform refers to policies on water demand, supply, price strategies for consumers and utilities, pollution, water spillage, treatment, institution and water regulation, and institutional reform etc. In our perspective, policy here would be more target-oriented to permit a better understanding of water policy , its operation and effects (Abernethy, 1996, p.23)

context, water supply, affordability, and the effectiveness of a regulatory framework in a particular context depend on these policies. In contrast,North(1990) puts forward a negative view, arguing that even though policies have existed for a long time, and have been applied in a number of situations (particularly with regard to the regulation of the water sector), very little has been realised in evaluating policy impact on rural households. This gap remains an area of concern and requires particular attention. This thesis will highlight how well the concerns of the actors, such as households, are reflected in water policy. The concept of water policy will be evaluated in a specific context to understand how effective it has been in terms of water supply in rural areas (see chapters 7).

2.2.4 HOUSEHOLD

The literature review has highlighted that households play a substantial role in the water sector in terms of management and delivery of water services (World Bank, 2010). A study by Bruns and Meinzen-Dick (2000) emphasises that household water management has become an important component in ensuring water supply meets demand in rural areas. It is often defined with respect to the roles played by members of the community in supporting the water sector. A related argument has been presented by World Bank (2010) report , highlighted that communities vary in terms of structure, scope, size, form and intended objectives because they are influenced by institutions. Hunt (1999) specifies that communities are guided by the role of water institutions in defining formal written rules, guidelines, and accountability systems. Hall and Lobina (2006) explain that since households are not involved in the formation of rules and other regulatory mechanisms, their experience becomes particularly necessary to understand the role institutions play. This is very important, as, in this thesis, an examination of households is used to capture the participants' perceptions of water policy and institutional execution in terms of their participation.

2.2.5 THE EFFECT[5]

Chileshe *et al*. (2005) emphasise that the concept of "effect" implies both positive and negative effects; these are influenced by water policy reforms and their implementation. In the context of this study, " effect" will relates to the poor quality of water and the lack of accessibility and affordability (or vice versa) in a rural community. This research considers other emerging effects which may have been observed during the analysis of the results. Briscoe and David (1988) explain that these effects will provide insights into how institutions implement policies to strengthen the water sector in a particular environment. Chuita (2002) explains that when effects are positives, they are likely to improve the sector's performance, but when they are negative, they are likely to identify the policy's weaknesses. He also indicates that when they are negative, they significantly impact institutions and people's perceptions of those institutions. Furthermore, he argues that when these effects are identified, they will highlight the problem encountered in determining the magnitude of reform implementation at household level (Bruns and Meinzen-Dick 2000). The use of the concept of effect in this study has allowed an evaluation of policy and institutions' effects on the poor; it has also helped in determining the role institutions play in the water sector. Importantly, it has indicated what Briscoe and David (1998) have also evidenced: little research has been done in developing an understanding of institutional impact in terms of policy reforms. The study by Bandaragoda and Firdousi (1992) demonstrates that, although the effects of policy have been broadly analysed, there is a general agreement among scholars that policy has not been effectively understood with regard to water policy reform. The study by Anand (2010) explains that this is considered an important area, as it will show if institutions' effectiveness in the delivery and implementation of reforms can stand the test of time (see chapter 8).

[5] The concept of effect in this study reflects the effects of policy and institutions on the process of water service delivery. The effects of policy and institutions are identified at the household levels in terms of water supply delivery. Any effect either positive or negative emerging as part of the policy and institutions process in the water sector on the citizens is considered.

2.3 EXPLANATION ON THE OPERATIONALISATION OF CONCEPTS

In this thesis, each concept will be explored in depth; for instance, the concept of water policy will focus on regulatory systems, as well as on institutional aspects of water policy reform at the household level. The data will be obtained through secondary sources: journals and other documentations. Further data will be collected through interviews with policy makers, households and members of the Village Water Committee in the Zambezi rural basin. These interviews will help to determine if there have been direct or indirect policy effects on water supply in the community. It will also help the researcher capture attitudes and social perceptions towards the institutions involved. It will determine the changes observed by the local people, including their involvement or non-involvement, and what they are likely to see in the future. Participants have helped to generate more information, identifying key areas of collaboration between households and institutions. Additionally, they have highlighted drawbacks in the process of water policy reform and outlined the key problems, tensions, levels of responsibility, and commitments among the various players. It has also permitted the researcher to gain experiences and learn lessons.

According to Nyambe (2002, p.33), the focus of institutions' research should be on how institutions and policies affect the water management options and outcomes in a specific context, rather than merely observing the significance of institutions' resources management in the water sector. This study aims to understand how institutions and policy actually affect the options and outcomes of water service provisions. Based on the literature review presented in this chapter, and keeping in mind the focus of this study, a modest attempt has been made to develop a conceptual framework for examining water sector institutions and policy in the Zambezi rural basin (see figure 1 above).

The conceptual framework has two parts: (a) institutions and policy; and (b) effects of the institutions and policy. It is based on a qualitative framework towards a more in-depth insight into the water sector implementation process. The working concepts used in this study fit well with the focus of the research question of the study. They are used to understand the shape of water sector in

terms of policy and institutional outcomes in the rural community in the Zambezi basin in Zambia.

At an academic level, it will clarify the institutional and policy contribution to the water sector in rural areas, and help to contribute to knowledge of institutional and policy theories. At a policy level, it will highlight how policy is implemented in the water sector to attain rural water sustainable supply.

2.4 THE LINK AND GAPS BETWEEN THE THESIS CONCEPTUAL FRAMEWORK AND OTHER STUDIES

The review of institutions and policies has revealed that various institutional frameworks[6] have been put forward to analyse the effective management of water in different situations. For instance, the study by Bandaragoda and Rehman (1995.p.2) indicates that a conceptual framework for institutional analysis was developed to investigate water resource management in the river basin to improve agricultural water management. Bandaragoda's conceptual framework comprises three key aspects: physical systems, socio-economic situation, and water accounting. These elements were applied to analyse how institutions have shaped the water sector in the context of the river basin, and it has helped to link the physical dimension of water specifically related to water quality, quantity, and non-physical dimensions as they relate to water users and objectives. Hofwegen *et al.* (1999, p.66) emphasise that such institutional limitations in the water sector are caused by the lack of clearly defined planning and management with very limited institutional capacity building to strengthen the coordination management of water activities.

Saleth and Dinar (2004) developed a theoretical framework in their study *Strategic Analysis of Water Institutions in India* based on assessing the link between various key concepts, such as the relationship of political systems and water laws with water policy and institutions. It also included other concepts, such as water administration, in the understanding and analysis of institutions in developing countries. Saleth and Dinar's institutional framework recognises that organisational structure is key to guiding the processes of the water sector. It is

[6]Institutional framework is defined as a set of formal institutions or organisations based on the rules and laws to promote the provision of water services (Bandaragoda, and Firdouisi 1992. p.4).

supported by Bandaragoda (and Firdousi 1992, p.3) who emphasised that the structure of institutional organisation has to follow three pillars: laws, policies, and administration to promote an integrated water management approach in a specific context. Policy and institutions are the construct of legislation that supports the management of water supply. Policy and laws differ because while laws obstruct institutional behaviours, policy helps to guide actions to achieve desired outcomes (Bandaragoda and Fridousi 1992). Cai *et al.* (2011, p.34) suggest that these three key elements (water policy, laws, and administrative systems) do not clearly deal with institutions in the rural water service provisions. This presents a key challenge to water supply in rural areas. Saleth and Dinar's (2004) and Bandaragoda and Firdouisi 1992, p.56) institutional frameworks do not specify how to incorporate the impact of institutions and policy, or how to evaluate in relation to the rural water sector.

The framework developed *by* Savenije (1997, p.12*) i*n *Conceptual framework for the management of shared river basins; with special reference to the Southern African Development Community (SADC) and European Union (EU)* has three pillars. The first pillar is politics, which is based on the states' political strategy to create a conducive environment, the second is concerned with technical cooperation, identified as the cooperative pillar, and the third involves institutions. The framework is linked to the concept of sharing international water resources between countries and regions in the world. It does not properly indicate how the shared management of river basins will be executed among the riparian countries involved. In this context, within an institutional framework analysis, if one of the pillars is weak for instance, if the water policy does not provide the right conditions for institutional roles then the policy is viewed as weak and affects the other pillars.

Scott's institutional pillars follow three dimensions: they are situated at the cultural cognitive, normative and regulatory levels. In the context of cultural cognitive, the influence of culture has to be considered as an essential force that shapes institutional behaviours (1991, p.35; 1994, p.26). Scott's institutional theory reveals that institutions have to be reorganised systematically with an appropriate set of roles in order to reflect means and ends of the relationship among players. The effect of culture in pursuing specified goals and objectives

in the water sector has to be considered when implementing policy and shaping the water sector. The normative pillar reflects how institutions and policy have to provide effective delivery of water services to achieve meaningful well-being. The regulatory pillar sets up rules and laws as well as the process for how to affect these in the water sector. The interconnectivity of these pillars in the reform process brings some limitations in the context of rural areas, because, as the review of the institutional literature demonstrates, the environment in which institutions have to operate is facing some specific challenges, including the alignment of the needs of the people with the reality identified in the water sector. This raises the question of how it can be effectively implemented to improve the water sector in general. One of Scott's institutional pillars is embedded within Zambia's water policy framework; for instance, the regulatory pillar is linked to the rules, laws, standards, and norms. It is evidenced in the institutional theory by Small and Svendsen (1990), who explain that the cognitive pillar focuses on the conducive environment that must be created to permit water reform to take place effectively; this hasn't happened in the situation of developing countries, although regulatory framework exists. The role of water institutions is also recognised in Scott's pillars, but in the context of Zambia's water policy and institutions at a local rural level, it is not emphasised and its application is not yet documented in terms of how it could contribute to the overall framework of institutions and policy analysis, particularly in the rural context.

These different conceptual frameworks proposed by various scholars, the pillars of water policy and institutions are identified as the main driving forces of water sector reforms in different contexts. This demonstrates how significant they are for driving the water sector, and the key question is: how do we ensure that policies and institutions are applied in the rural context, and what will be the likely implications in this context? Based on the above discussion, and arguments within the literature, water provision in developing countries is an issue of critical interest at a global level; despite having been debated for decades, finding solutions to the crisis is a challenge in a number of countries. Various approaches have been proposed and applied in diverse contexts to overcome barriers constraining the effectiveness of water policy and institutions in the water sector. In view of emerging water policy, institutional changes and

identified challenges, the application of the proposed conceptual framework in this study has taken into consideration the various environments in which other conceptual frameworks were applied, and, in this context, the proposed conceptual framework investigates water policy and institutions to analyse how they have contributed to the management of the rural water sector, specifically in relation to water service provisions in the Zambezi rural basin. The study's proposed conceptual framework is based on Saleth and Dinar's and Anand's conceptual frameworks by capturing specific key elements such as institutions and policy, while the element of effect is included as a result of its link to institutions and policy outcomes as well as the options available to water service delivery. The applied conceptual framework is meant to guide the grounded theory methodology in order to generate theories that are best suited with the contextual investigation of this study. In the next section, institutional theory is analysed

2.5 **THE THEORY OF INSTITUTIONAL ANALYSIS**

This section explains the concept of institution and discusses institutional performance and its arrangement. Institutional alignment, aimed at understanding institutional dynamics in the water sector, will also be covered. Within the institutional theory, there is a lack of clarity in regard to how an institution should be defined; the definition of institutions is often specific to the society within which it is being defined. From this perspective, Bandaragoda and Rehman (1995) indicate that institutions can be defined according to different contexts, thus making it complex to settle on one explanation. They also noted that various attempts at definitions and explanations of institutions are based upon the nature and the realities of the society in which they have to be analysed and developed. Therefore, institutions are typically influenced by social realities and the degree of social order governing institutions (Saleth and Dinar, 2000). Scott (1994, p.45), and Uihassan *et al* (2004) classify institutions as Cognitive, Normative, and Regulative and asserts that they are structured to provide institutional stability and connotations to social behaviours. Scott explains that the Normative Institution defines institutional objectives and suitable systems required to pursue its values and norms in a social context.

The concept of Cognitive institution addresses institutionally shared views in which the nature of social reality is reflected and the meanings constructed. The term Regulative institution defines the regulatory systems of the water sector (UNEP, 2012. p.134). The regulative mechanism will constrain institutional behaviours and be comprised of laws and rules that greatly influence the shaping of institutional responsibility, implementation of policy for water reform in developing countries, and long-term institutional behaviour (Africa Water Task Force 2002a, 2002b). The Regulative institution shapes behaviours, facilitating the process of decision-making within institutions (Bhatia *et al.,* 1994, p.44).Scott (1991) further indicates that institutions are reflected in three main pillars performing as an analytical framework, considering whether or not the key agents or stakeholders have the capability to effect the decision-making process within the implementation of water sector services. Saleth and Dinar consider institutions to be the "*rules of the game*" (2004, p.45; 2006, p.34) in a particular society or community, as the rules of the game are usually interpreted by various institutions implementing regulations in the water sector.

The rules of games are often formulated by policy makers to achieve the objectives of the water sector and, in most situations; the rules of the games are not static meaning that they do change over time because they are influenced by the changing institutions (Ariel and Jose, 2009, p.14) Over time, the rules of the game disappear because of the changing nature of water sector policy (Arriens *et al.,* 1996). Changes in policy objectives influence the dynamic of the content of the rules in any specific period of time. The rules will therefore be subjected to being replaced by other newly formulated rules in order to adapt to the water sector policies changes (Africa Water Task Force, 2002b; Briscoe 1994). In this context, the rules are reflected in the changing nature of water institutions through the implementation of policy in dynamic environments. To illustrate this, Bandaragoda and Firdousi (1992) suggest that:

> Any institutional change in any organisation relies on three key critical assumptions. Firstly, is that the organisations do act as an actor to ensure that it makes sense of its existence, and interprets the environment and the organisations in which it operates in order to understand the world of the world they live in … secondly is the pressure

> from the effect of environmental systems which has shifted the way the institution perceives the world, and consequently is affected by the observed changes or shifts… Thirdly, is the degree by which the actors consider the context do vary with the kind of environmental pressures identified.

Kampala *et al.* (2002) argue that institutional change can be either imposed or induced, depending on the circumstances in which institutions change and the degree to which the changes target the institutions' objectives. Two diverse types of institutional change are as follows.

An induced institutional change only applies to modifications or replacements of a specific institutional arrangement that is established voluntarily, with plans to execute certain activities in response to opportunities that are envisaged to be profitable (Foster, 2005). This type of change is imposed directly in the jurisdiction of particular countries; the changes are imposed on society through laws and policy (Hearne, 2003).

Within the new perspectives of institutional economic literature, there are two different approaches which include demand and supply and attempt to explain likely institutional changes within the water sector (Cocq, 2005). In addition, there is well-documented interdisciplinary literature related to institutional changes and it is therefore not easy to address every single institutional theory of change (Bayliss, 2003). In contrast, Kroll(2002) gives a different perspective of institutional change, indicating that institutions have to take into account design, adaptability, diffusion, and collective action, as each of these provides diverse questions in relation to explaining institutional changes (Gibbons, 1986).

Studies by Saleth and Dinar (2004) recognise that institutions have to change to adapt to new forms of water policy environments, which are reflected in the nature of the water crisis in which the institution was initially constructed. For example, the institution needs to consider how the rules of game will be applied to strengthen particular areas of community interest (Glennon, 2009). Saleth and Dinar further indicate that changes to the rules depend entirely upon the situation of the institutions' motives and the circumstances in which they operate. For example, in South Africa (among other countries), policies are

altered to accommodate the needs of water conflicts (GWP, 2000). For instance, water conflicts refer to a dispute between households or groups of people over access to water supply (Handy and Lacirignola, 1999). Water conflict arises when the institutions oppose the interests of water users or households and can be due to the need for institutions to adapt to the identified challenges that institutions face (African Infrastructure Country Diagnostic (AICD 2010.p.13). The type of institutional change is primarily influenced by the country's governing institution in regard to how it controls the operationalisation, and how it has to implement water policy (Beiger and Luckmann, 1996, p.27).

Adelman and Head (1983) explain that water sector institutions have limited influence in the decision-making process or the prevention of social rules; these will be controlled by the government of the relevant countries. The prevention of social rules also depends on the structure of the community and the application process of such rules among members of the community (Biswas, 1997). How do the institutions' limited roles influence the management of water policy? This has remained the main critical challenge faced by policy makers through the implementation of water policy in many developing countries (Biswas, 1994). Similarly, a study by Buttel (1997) highlights that a theme common to all these notions of institutions is one of individual purpose, choice and preference which have to be partly moulded by social circumstances in order to provide services that are fit for the social needs of the people in need of water. Furthermore, institutions have self-perpetuating 'going concerns' that order relationships between individuals in society, providing the laws, constitutions, contractual regimes, moral and ethical precepts (Biswas, 2001). Wade (1982) argues that institutions should be effective and robust enough to develop a special capability which will help strengthen their adaptive mechanisms in a more efficient way for the implementation of the water sector at any level. For instance, when institutions are faced with water problems, they should be able to underpin the regulatory market and water design, ensuring that water management, in the context of service provision at any level of the community, is achieved (Holmes, 2000). The next section will discuss how institutions are arranged in relation to shaping the water sector systems.

2.6 INSTITUTIONAL ARRANGEMENTS

The concept of institutional arrangements refers to the delegation, power, and sharing of roles and responsibilities in order to manage water sector decision-making and implementation authorities (Braadbaart, 2005). Implementation authorities can be government agencies or other institutions involved in the delivery of water services and the implementation of policies (Berkoff, 1997, p.6). Institutional arrangements determine the way water distribution services are governed by multi-agency that are involved, and also determine the implementation of water policy (Bayliss and Mckinley, 2007). However, institutional arrangements do differ between countries, as well as over time (Bulloch and Darwish, 1993, p.25). The changing nature of institutions, specifically in terms of policy towards the water sector, influences water distribution for effective supply to the households within the water sector (Rampa and Puig, 2011).

Chitonge (2010) explains how institutional arrangements refers to specific rules and regulations governing particular water sectors in terms of resource management. Chitonge's explanation of institutional arrangements links with the core issue of this study due to the fact that institutional arrangements ensure that activities of the water sector are well-ordered and managed in accordance with established rules and policies for the delivery of water services. A study by Powell (1998) indicated how the level of success achieved by institutions when implementing a specific country's water policy to achieve water sector reform depends on the kind of strengths the organisation has and the suitability of choices made regarding institutional arrangements, either to be established or having already been established. To ensure institutional success, it is a prerequisite that factors such as availability of capital, the types of technology and, and human resource (skills and expertise) availability within the domain of water management are achieved (Bhatia *et al*., 1994). However, the operation of water institutions can only be effective unless when they are given resources to implement policy on water supply (Bandaragoda and Fridousi, 1992). The institutional arrangements also depends on the characteristics of the water sector because of the fact that weaker institutions will provide a very low level of effective policy, thereby impeding the reform of the water sector to improve the

water supply for rural people (Bromley, 1982; 1989). In a situation where the institutional arrangement is strong enough, it will provide a very high level of effective water policy and it may also lead to improvements in the water sector (Bromley, 1987). The degree of institutional arrangement will also further indicate the readiness of countries to adapt to the changing environment (Banergjee *et al*., 2008). According to Basson and Van Rooyen (2001), good water institutional arrangements are the key for liberation and development of the water resources, while Biswas(1997) argues that how countries determine what are good institutions are still not yet identified because good institutions are defined based on specific context.

However, the study by Kerr (2002) tried to provide an example, suggesting that good institutional arrangements could mean having adequate finances to develop an institution's capability and capacity in terms of staff development through training. In another argument, Kauffmann and Perard (2007) emphasise that institutional arrangements that are classified in terms of capacity and finance will not necessarily produce good outcomes in the provision of water supply; what is needed is for good policy to be in place and institutions to work for rural people rather than be focused on the short-term objectives of policy reform.

Bow *et al* (2011) assert that any sector, regardless of its nature, can only prepare and manage its programme effectively if the water institutions are involved in the planning, implementation and operation of policy reforms and service delivery. Even though government agencies and departments are typical forms of formal institutions, there are also other similar institutions that are ultimately involved, affecting water policy and water sector in one way or another (Water Aid Zambia, 2012, p.56).

Smith (2003) stressed that despite formal institutional arrangements, informal institutional arrangements might also have a profound effect on the water sector's allocation and uses of water supply for rural households. For example, informal institutions such as water vendors, small private enterprises, private providers, and operators of water supply might be providing water alongside formal institutions in the same geographical area (Bromley, 1982). Consideration of there being other smaller informal water providers is absent in

the policy frameworks of a number of developing countries: Zimbabwe and Malawi are two examples (Bruns and Meinzen, 2000). In Zimbabwe and Malawi, their water policies do not recognise the need to empower small water operators in the informal water sector so that they can support the gap in water supply for the rural communities (Bruns and Meinzen, 2003). However, the absence of informal water policy is identified as a weakness of many policies in other developing countries, such as Zambia (NWASCO, 2007a; 2010, p.45). What is understood, however, is that the informal institutions present a new hybrid form of institutional arrangements aimed at bridging the gap between the supply and provision of water to people of low economic status, as water policy falls short of meeting the requirements of future water needs in communities within developing countries (Feldeman, 2007, p.66).

The study by the UN-Water Decade Programme on Capacity Development (UNW-DPAC, 2008, p.17) notes that these informal institutions are extremely adaptable and flexible with the capability to respond very quickly to demand-driven forces. In contrast, Moriarty *et al.* (2004, p.79) indicate that unless these informal institutions, which operate mostly at the rural level, are formalised and legalised, with a regulatory framework in place in line with objectives to deliver quality water to people with low economic status, the issue of the water quality provided by the informal institutions will remain a matter of concern to many developing countries. Another study by Grafton (2007, p.23) highlights how formal institutions have the right to implement policy because they have been established to regulate the water sector and develop strategies which will enable them to support the process of water sector delivery services at a rural level. Although informal institutions are informally involved in the water supply, their strategies to support the water sector are non-existent at a formal level (Dahan and Nisam, 2007). Therefore, such informal institutions require further support by formal institutions in terms of collaboration and policy reform (Devolution Trust Fund (DTF, 2004, p.55). Bauer (1997) argued that the absence of smaller informal institutions within policy and institutional frameworks in many developing countries demonstrates how the informal sector is not clearly identified or recognised as holding important institutions. Having discussed different concepts related to institutional theory, the key question

remains how to determine which kinds of institutions are involved in water sector management and how such institutions are classified.

However, an institution's classification is important because it will help policy makers to understand how to classify the water sector based on real needs; this will permit a better classification of institutions in a specific context to address specific water needs of the people concerned(Saleth and Dinar 2004,p.56). In the present form, institutions are broadly classified because they are not directly linked to the water needs of the people concerned, which make their operations not sustainable (Faysse, 2004). Regarding this particular question, institutional arrangements are discussed in the following work in the context of public agencies, private sector, and nongovernmental organisations (NGOs).

2.6.1 PUBLIC AGENCIES

In developing countries, public agencies (institutions) were created in order to meet specific needs within the water sector (Powell and Paul, 1991). Most of the public institutions in developing countries were established to provide a regulatory framework for the water sector, in terms of controlling and monitoring the management of the water sector (Vermillion *et al*., 2000). This need for control and management led to developing countries building an institutional framework such as governmental ministries, or departments with defined responsibilities for a specific water sector, but their responsibilities remained ineffective in the water sector, such as irrigation, agriculture, fishing, transport, energy, health and environment (Proag, 2006). Each department or ministry would deal with one aspect of the uses of water (Bauer, 2005, p.14). The establishment of these various institutions is a result of legislation promulgated by different countries to strengthen the water sector (Bauer, 1989, p.54). Institutions will formalise necessary rules for resource use, and establish a way for information to be distributed to water users that will guide the water sector (Hannam, 2003). When institutions formalise the rules, the process of water sector policy making becomes more transparent this is not true of the institutions operating in the water sector in developing countries (Howard and Bartram, 2000). For example, in the current status of institutions, water users

are not even aware of the key rules governing the water sector and therefore water users are constrained from better understanding on how the water sector is managed at an institutional level (Howe *et al.,* 1986).

Institutions are viewed as being both formal and informal: formal institutions are guided by rules, laws, and procedures, while informal institutions are informally established based on procedures, norm, practices, and patterns of hidden behaviours which have been established as part of the informal process over a long period of time (Bauer, 1988). The informal practices will become part of the institutional framework, therefore becoming part of the rules in their own settings, with rights access, if they are recognised by policy makers and the communities (Amery and Wolf, 2000, p.55; Bhatia and Falenmark 1992). Koundouri *et al.* (2011) indicate that in many developing countries, informal institutions are rarely prioritised over formal institutions because of the lack of legal status, and also because of the negative effects that enforcement of formal rules can have and the difficulty that can be encountered trying to apply them. This can have further effects on informal institutions, as well as the water supply performance and delivery (Mapedza and Geheb 2010; Bandaragola and Firdousi, 1992). The synchronicity of formal and informal institutions is unavoidable; there are situations where the existence of informal rules will significantly challenge the formal rules within the water sector and this will depend on the degree of institutionalisation of water sector in the country (Huppert *et al.,* 2001; World Water Commission (WWC2000); World Water Council 2011). Consequently, the establishing of informal rules has to contribute to the formal rules, thus creating a harmonisation of rules that is currently lacking in policies from promulgated rules, laws, and regulations (Ostrom, 1992, p.17).

However, each region in the world has its own procedure as to how institutions are constructed; for instance, in the European Union (EU), institutions are better managed through a process called “decentralisation” (Kroll, 2002). Decentralisation is when institutions are independent from governmental interference in order to ensure that people have the authority to manage their own resources. (UNDP 2007; IHE/UNDP, 1991). Regulating the water sector in the EU, for example, would be undertaken in accordance with established

legislation, with the intended role of the government to provide an enabling environment (Baietti *et al*., 2006, p.6). However, there are still limitations in this area when institutions do mostly rely on funding from governments and constrained by the EU legislations on water management(World Water Vision 2000). In other developing countries, the structure of institutions is highly concentrated, meaning that governments are directly in charge of all activities in relation to how the water sector should be decided upon in terms of the decision-making processes *(*Smith, 2008*).*This type of institutional structure is limited by the fact that institutions are weaken in the area of policy formulation and implementation (Yuil *et al* 1980). Despite the institutional structure, both decentralised and centralised water sector management remains the key issue in determining the effectiveness of institutions' implementation of water activities (Ingram and Oggins, 1992).

In this context, there are two key issues that have emerged within the institutional framework. The first is that how institutions are fragmented requires particular attention if institutions are to effectively operate in the water sector, due to the division of responsibilities between various departments (International Water Resources Association (IWARA 1999). The second is the need to ensure that institutional effectiveness is improved in the context of water management (Sampath and Young, 1990, p.32). However, institutional structure remains much more complex because of the multiplicity of diverse institutions involved in the water sector, which consequently constrains their management responsibilities (Izaguirre and Hunt 2004). Institutional structures are specific and cannot be related to all developing countries because of the nature of water policy diversity in terms of management of water sector (Bakker *et al*., 1999, p.6). Thus, this remains an important challenge for policy makers because of its link to the management of water resources, particularly water supply planning and how management of the environment is carried out (Jacobs 1999). Within institutional frameworks, many countries have developed centralised systems for policy and planning, of which the complete coordination and control are executed by an established board, comprised of senior staff emanating from a number of ministries and departments involved in all relevant aspects of water-related activities (JICA, 1994). In some situations, water planning can be supported by a strong suitable professional body in order to

support the implementation of policy (Bandaragoda and Reheman, 1995). The board of water institutions may be chaired, for instance, by a higher level of government (Savenije and Van Der zaag 1998). For example, in developing countries, a president might chair the board of water institutions; two exceptions of this are Morocco and Tunisia where the board of water institutions is managed by trustees of water institutions, and in some situations, as in the case of Morocco, the King is recognised as a chair of the board of water institutions (Jiang, 2010). In other countries, such as Swaziland, where the King is also recognised as being the main chair of the board of water institutions, planning of water management does not reflect the needs of people; rather it reflects the wishes of the kings, thus limiting the authorities of water institutions to effectively plan the activities of water reform (Joshi and Hooja, 2000; Van Der Zaag *et al* 2002).

The various key players in the water planning of water management reflect how politics influences the water sector and how significant politics is to the water sector (Huppert, 2005, p.9). According to Kujinga (2002, p.66), the establishment of centralised policy and planning processes reflects the unitary nature of water systems adopted by developing countries. The unitary water system indicates that the water sector is not open to external changes such as new policies for example, the acceptance of decentralisation in the water sector and how the implementation remains an area of critical concern for the water sector(Berry and Mollard , 2010). Kujinga (2002) also stated that countries such as Tunisia, for example, have benefited from an institutional, centralised administrative system supported by comprehensive water reform plans, which has brought in effective decision-making and investment in the water sector to improve institutional efficiency. In a study by Bruns and Meinzen (2005, p.67) comparing Egypt and Kenya, the establishment of water institutional boards have lessened institutions' ability to determine where the allocation of water resources should be directed. A key consequence is that the absence of effective water boards in the water sector has reduced the effectiveness of institutions, due to a lack of authority (Mujwahuzi, 2002). This may lead to the absence of competent authority to operationalise the water sector (Nakayama, 2002). Another study by Buckall *et al.* (2001) also demonstrates that the lack of success with this institutional approach should not, in real terms, cause policy

makers to forget justifying the significance of the coordinated planning of water resources. Buckall *et al.* also emphasised that there must be genuine commitment from the authorities to formulate policies, in order to ensure that water projects and programmes are addressing the people's water needs; otherwise, policies may not succeed.

Nickson and Franceys (2003, p.10) emphasise that only a few countries have adopted institutional arrangements based on the decentralised model for the management of water sector resources. This type of decentralised system is often viewed as giving mixed messages, because the decentralisation water sector model will only lead to effective water supply if the process of water planning has taken into account the views of the people for whom water supply is a priority(Ministry of Agriculture and Cooperatives, 2002, p.56). In other situations, these mixed messages are also an indication that the decentralisation of water systems do not promote effective water supply and that people who need water are still in need of water for their daily activities (Ministry of Energy and Water Development, 1994, p.43).

Cai *et al*. (2011, p.14) indicate that institutions operating within decentralisation framework are seen as being well financed and properly staffed, but in some cases, the implementation of water is ineffective. Furthermore, limitations of decentralised institutions do not allow community members to develop a coherent management strategy (Molden and Sakthivadivel, 1999). This lack of development is due to the fact that institutions and their members become reluctant when activities are due to be implemented (Jackson and Morrison, 2007, p.11). However, it is necessary for developing countries to align the decentralisation model of institutions with the needs of people, in order to give people free choice over water policy planning, rather than leaving water policy in the hands of the authorities (Molle and Berkoff, 2005). A decentralised system that is aligned with people's needs promotes effective transparency and accountability in the water sector (Jepperson, 1991, p.25). Furthermore, there have been some cases that have seen the application of decentralised institutional models for example, Senegal and Botswana where the countries have provided a conducive environment for institutional success in the water sector (Mollinga *et al.,* 2004). Conducive institutions have included the

participation of people to promote coordination of policy implementation in the water sector (Burton and Molden, 2005, p.20). The institutional success in Senegal and Botswana has been due to the country giving more authority to the rural established institutions in order to implement the necessary policy reforms in the water sector (Mollinga and Bolding, 2004). Decentralisation has promoted the installation of water wells as part of the water supply infrastructures (Moore *et al.,* 1994). This institutional success provides an indicator that institutional reform is working in line with policy objectives within the management of water activities when effective policy is adopted by a country (Jones *et al*., 2002, p.3). The institutional model, based on decentralisation of the management of water, is a suitable model to improve the management of the water sector; however, one key concern is that it cannot be guaranteed that the same success in policy reform would be seen if the model were applied in other countries (UNEP, 2012). In relation to this key concern, Water Aid Zambia (2009) report highlights that every country has its focus on policy reform and the adaptability of institutional models, and they should therefore take the local conditions into account when water policy is in the planning stage. In pursuit of the suitability of institutional models, the next section will analyse how the private sector can contribute to the water sector.

2.6.2 PRIVATE SECTOR IN THE WATER SECTOR

The inclusion of the private sector in the water sector has been as one of the most significant and controversial trends in the water sector at a global level because of the nature of private sector involvement in the water sector and the interest it has in improving the water sector (Lathan, 2002). Private intervention in the water sector is a controversial issue because it is viewed as a mechanism that has facilitated the acceleration of water being priced at a higher level, making it practically impossible for people in the rural areas to access water (Morarded *et al.,* 2005). The private sector also determines how water service is delivered in terms of production and management of the water sector (Carrasco, 1995). The management of water services transferred from public agencies directly to the private sector happened in 1982 when country adopted privatisation policy (Cernea, 1987). This means that the water sector will become privately owned (Morris, 1997). The process of organisations moving

from public to private ownership is known as “privatisation” (Arriens *et al* 1996). The way water is treated as an economic good and how the privatisation model has been adopted are not new ideas within the water sector (Chandiwana and Snellen, 1994, p.29).

Water Aid Zambia(2012) highlights that the privatisation of the water sector has been happening for a long time as private investors, entrepreneurs, and other markets and investors have been involved in the provision of water services in diverse areas of global communities. However, what is new in this arena is the degree of privatisation in the water sector, the associated growing problems, and how citizens perceive privatisation in the delivery of water services (Mpande, 1995). At the Second World Water Forum held in March 2000 at The Hague, a delegation emphasised how important it was for countries to assess how they can mobilise the necessary financial resources in order to solve water problems (Lathan, 2002). The delegates called for greater involvement from the private sector in water provision to attain full water coverage in communities (Chenje and Johnson, 1996, p.25). Additionally, international financial institutions, such as the World Bank, international aid agencies, and other organisations who are charged with solving water problems, have imposed the policy of privatisation on developing countries without fully understanding the conditions in which water policy should be implemented (World Bank, 1994, p.26). One of the key problems with international agencies is that they have a common set of guidelines and policies regarding what states should follow if they are to privatise (Kampala *et al*., 2002).

However, during a review of the literature on water privatisation, another concern came to light regarding how pushing developing countries into adopting privatisation policy is not good due to the fact that international agencies do not understand the micro-environment in which water sector privatisation will have to operate (Joseph, 2001). The link between macro-environments and micro-environments in terms of the general water environmental policy framework does not appear to have been well thought out because of the changing nature of the overall environment towards the water sector (Kampala *et al* 2002). If the UN evaluated countries’ water situations and also understood the macro- and

microenvironments, aligning their policies with local realities, the present situation in terms of strengthening privatisation policy could have seen different outcomes (Chileshe *et al*., 2005, p.65). The absence of critical analysis of privatisation policy, specifically for rural areas in developing countries, is another area which has not yet received sufficient attention in many studies (Chitonge, 2010, p.10). The key question is how well would privatisation policy in the water sector succeed, particularly in poorly developed rural areas? The privatisation of water policy must undergo changes in order to allow institutions to remain in control of privatisation policy, rather than the countries taking charge and leaving water institutions out of the general sphere of privatisation management (Namara *et al.,* 2005).

Evidence in a UN (2012, p.67) report clarifies that, traditionally, water service provision and sanitation facilities were principally state or local authority responsibility; however, the substantial involvement of the private sector was seen as inappropriate as the countries were in charge of water sector management. The private water providers had objectives to maximise their profits and neglected people of low economic status around the provision of clean water for drinking (Nash, 2005). However, the lack of involvement of private water providers within the water sector was mainly as a result of the effective policies implemented to encourage the private water providers to sustain the provision of water to rural households (Chitonge, 2010, p.22). Private providers were not convinced that rural areas could provide an environment in which they could operate effectively to maximise revenues and sustain their operational activities (Chiuta, 2002, p.44). Despite the lack of commitment by the private water providers, they were motivated to promote the water sector in urban areas because of the countries' inability to finance the water sector and their failure to find ways to raise capital improve operations and maintain water systems (Foster, 2012). Countries such as the South Africa and Mozambique found themselves in a position where they were unable to raise water prices and were required to develop policies to manage the private sector water management structure (Chitonge, 2007; Meinzen-Dick and Zwarteveen 1998). The absence of concrete policies led to private water providers increasing water prices due to the ineffectiveness of the institutional framework (Cocq, 2005, p.55). Other contributing factors include the fact that

the states believed that private water agencies would be more efficient than public agencies, consequently reducing costs and increasing the efficiency of water sector services in terms of quality and water coverage (Connell, 2010). Although privatisation became the main policy instrument for the water sector, Lipton and Litchfield (2002) assert that it does not constitute a guarantee for improved water sector performance due to their motivation to raise the price of water and the costs associated with the provision of water to communities (Cook and Kirkpatrick, 1995, p.66). For example, when a public sector organisation is converted into a private sector organisation, there isn't a competitive incentive for the utility to be able to operate efficiently, ensure the necessary return on investment, and meet the water users' demands or respond to their requirements (Coward and Jr., 1986a). Similarly, water privatisation is perceived as not doing enough to improve water performance if states are not willing or not able to deal with water sector problems, such as: uneconomic water price policies; financing of water service provision; and limiting the interference of the states in water affairs (Coyaud, 1988).

The privatisation of the water sector comprises a large amount of specific and diverse potential water sector arrangements. For example, the first model that was introduced was called a public private sector partnership with an institutional arrangement, where a number of responsibilities were delegated to private entities (Craig, 2000). This demonstrates that privatisation of water management can be partially or completely adopted, leading to a complete withdrawal from the states (Craig, 2000). The countries would no longer have any control of the water sector and their responsibilities will consequently lead to a complete transfer of full ownership, with the entire water operational system transferring to the private sector (Nasr, 1999). Other models of privatisation also include concession contracts; for example, in Brazil, the private sector holds 66 concession contracts, but is limited in comparison to other sectors such as infrastructure and transport (Noll, 2002).

However, developing countries have introduced the privatisation model in the water sector without having a legal framework geared toward the management of the private sector (Crase and O'Keefe, 2009, p.23; 2008). For example, the study by Dagdeviren and Robertson (2009) shows how the private sector in

developing countries have contributed to and engaged in water sector services: developing countries, such as Malawi and Zimbabwe, have not yet properly regulated the private sector and the ineffectiveness and lack of regulation in the water sector became a major challenge in the application of privatisation model on the water sector. Despite the lack of effective regulatory systems in the private sector, the World Bank and the UN have managed to improve 130,000 water wells at minimal subsidies estimated at 4–6 US$ per capita. However, the maintenance of water supply facilities was a significant issue due to the private sector failing to invest in the operation and maintenance of water supply facilities (Nyambe *et al.,* 2002).

In 1986, the participation of the private sector was significant statistically, with pilot projects being run in Ethiopia, Malawi and Uganda, where these countries yielded promising results (Coyaud, 1988, p.20). However, a study by Samad (2005) highlights that the absence of well-developed private water sector policies encourages individual water initiatives, which are critical to water sector. Although Samad highlights the significance of the private sector, a study by Small and Carruthers (1991, p.65) demonstrates that the private sector's role is limited to supporting the supply of water to households in the rural sector. A study by Anand (2010, pp.157) indicates that although privatisation has been adopted as a policy for the water sector in developing countries, in some countries for example India the process of water privatisation has not yet been fully adopted. Very few areas in India have experienced privatisation of management contracts, leases and concessions.

However, the argument by Liamas *et al* (2009) is that privatisation could have been better implemented if a direct partnership between the institutions and the private sector had been promoted to supply the water at the rural level. It is further argued by Libecap (2007; 2010 a) that even in countries where privatisation policy is fully implemented, private sector involvement in the water sector has a specific role to play in increasing benefits rather than promoting the water sector programme; although, in some situations, it can be involved as part of economic profitability rather than serving the people's interests.

The existing literature on the private water sector indicates that the experience to date has been very disappointing, and the outcomes undesirable because of

the way private sector has handled the aspect of water sector in its operation (Samad and Merrey 2005). This disappointment is due to the fact that the flow of private sector investment in the water sector has not fully materialised because the private sector has increased the cost of water in terms of tariffs; therefore, people with low economic status have not been provided with water by the private sector (North, 1987). A study by Nyambe *et al* (2002) attributes the disappointment to factors such as the inadequacy of the policy institutional framework and a poor understanding of the risks associated with private sector participation in the water sector. Despite the role of the private sector in water provision, little evidence is available on the potential future contribution of the private sector operators from the aspect of financing in the provision of the water services (Svendsen and Huppert, 2000; Moss, 2003).

The role of the private sector needs to be revised in terms of forging partnerships based on a participatory approach aimed at improving water supply (North, 1990). Partnerships in which all parties have the same common policy geared to improving the water sector, while at the same time ensuring economic benefits, are assessed in relation to the maintenance of water supply facilities and operational issues (Brinceno-Garmendia *et al*., 2008). For example, the study by Anand (2010) indicates that the water sector in urban areas has increased tremendously compared to the water sector in rural areas.

The study by Anand shows how the role of private sector development in rural areas is not yet fully understood in relation to the context of policies and the institutional framework in a number of developing countries, due to the dynamism in the changing nature of policy implementation reforms. Policies regarding private sector providers have to exist in order to strengthen the water sector in rural areas and improve the development of the water sector in developing countries (Charkasi, 2000, p.2). However, within the context of this study, it could be argued that the focus on aspects of the private sector is important because of its significance in contributing to the water sector (Dagdeviren, 2008, p.13). Some failures of privatisation policy linked to the lack of effective regulatory framework and the ineffective decentralised model have been identified as the key contributors of the institutional and policy failure in the water sector (Ohlsson and Lundgvist, 2000). However, some successes have

been recorded in the implementation of privatisation policy, as discussed in the previous paragraphs. For example, Huppert and Urban (1998, p.67) demonstrate how in Senegal, Morocco, Brazil, and Malaysia, the utilised model of public–private partnership has proved to be a success. Public and private companies are both involved in operational activities, as well as setting and collecting tariffs, which has been made possible through agreed contracts (Dagdeviren and Robertson, 2008, p.55). Lipton and Litchfield (2002) argue that the issue of water privatisation remains contentious because there is no common agreement as to how it should be implemented to improve the water sector. Developing countries view privatisation as a means; costs of operations and maintenance are handled by the private sector and this will consequently affect how water sector activities are operationalised in terms of policy for service delivery (Olmstead, 2004). In the next section, NGOs will be discussed in the context of water providers being profit-making institutions.

2.6.3 NONGOVERNMENTAL ORGANISATIONS IN THE WATER SECTOR

The main question is why have NGOs become part of the operationalisation of water services? A review of the literature indicates that NGOs have played and continue to play a significant role in water sector communities (Delange, 2004, p.42). This is evidenced in the situations of Southeast Asia Pacific and Sub-Sahara Africa (SSA), particularly in rural areas. A study by Smout (1996, p.10) also emphasises that NGOs play a prominent role in the water sector. These organisations have recently focused on forging a link between the technical and social aspects of project delivery mechanisms (OECD, 2011). Other studies by Pakhus (2006, p.17) indicate that drawing on the extent and depth of various nongovernmental experiences in the delivery of water services provides a huge opportunity for NGOs to develop working relationships with other players such as water utilities, associations, and government agencies including institutions. NGOs should aim to ensure that hardware and software components are embedded in water project initiatives in order to improve water benefits to communities in developing countries (Ostrom *et al.,* 1993).

Studies by Perret (2002) indicate that specific concerns have been experienced in the water sector with regard to the role of NGOs. Within a traditional local

context, the role of NGOs should not be limited to the water sector only; it should also be extended to household collaboration because NGOs have a strong comparative advantage in ensuring that the water sector is promoted within the institutional framework (Chola, 2003). Tortajada and Biswas (2010, p.21) argue that NGOs are well-positioned to add value to water sector initiatives and projects, as well as relevant policies. NGOs are able to work with rural households and communities at large to improve the water sector but they are constrained by the ineffectiveness of water policy frameworks adopted in developing countries (Pahl-wostl, 2002). Study by Louka (2008, p.66) emphasise that NGOs are recognised as being good at playing various roles in the water sector and have been developing and promoting water through suitable, sustainable and cost-effective mechanisms. Penning de Vries *et al.,* (2005) also said that NGOs could act as intermediates between the communities/states and other service water providers. Peria and Salones (2003) also indicate that this role has never been realised in developing countries where policies have been formulated and implemented. The role of NGOs is limited to the provision of funding to support activities in those affected areas, but not necessarily to other parts of the country (Komives *et al.*, 2005, p.23). This trend has therefore impeded the growth of the water sector and consequently affected the overall operationalisation of the water sector in rural areas (Perry, 1995). For example, the study by Sturn *et al*. (1996, p.61) emphasises that, based on the experience of water services delivery by NGOs, there is a need for policy makers and other players to understand the significant role NGOs could play as intermediate agents between the states, water users, utility services and others, to work together for the growth of the water sector and collaborate in order to achieve successful water sustainability in rural areas.

Basson and Van Rooyen (2001) indicate that the role of NGOs should be considered with respect to their limitations in the delivery of water sector activities. Studies by Marin *et al.* (2010) indicate that the success of NGOs in the water sector is diverse and depends on country conditions and policy framework because if the policy framework is not in favour of NGOs playing a significant role, then the water sector is likely to be unaffected as in the NGOs will be unable to make impact. In situations where NGOs have been given a role within the policy framework, their contributions are well-evidenced at local

level (Perry, 1999). In contrast, the study by UNWWAP (2006, p.16) emphasises that when NGOs are not sufficiently engaged with the water sector in developing countries, they fail to coordinate with other players and sectors. Other issues impacting the effectiveness of how NGOs play their roles include the lack of consistency in approaches with government departments; the issue of the appropriateness of the government policies and regulation in the water sector; the way decisions are made on water projects, [sometimes influenced by governments]; and how NGOs ensure that they provide equitable allocation of projects without interference of governments (Dirkesen and Huppert, 2006, p.12). Additional factors include: how they view their roles in the water sector as being either long term or short term, and how they become the main providers of the water services or as catalysts in stimulating water sector services (Peter, 2006). These issues have affected how NGOs deliver the water services in rural areas where they are mostly needed (Guerra *et al.,* 2010). This shows that even though their roles are recognised in the water sector, the literature on NGOs reveals that their involvement in water sector activities is limited in terms of programme and project implementation, and the policy promoted in each will determine their actions.

The analysis of the literature on NGOs indicates that they are important to the delivery of water sector activities, particularly to the supply of clean drinking water and sanitation services. However, NGOs are constrained by the current ineffective water policies which do not provide a conducive environment for effective implementation of policy reforms (Pinay, 1998). Due to NGOs not being involved in the formulation of policies to strengthen the water sector activities, the activities of NGOs and the overall policy agenda suffer a lack of connection and coordination.

The main question is how do we evaluate the performance of these diverse institutions? The next section will focus on how institutions are evaluated in the water sector in terms of performance.

2.6.4 GENDER DIMENSIONS OF WATER POLICIES

Gender is a socially constructed role, behaviours, activities and attributes which are adopted by the society to refer to men and women (Namara *et al* 2005). Nash (2005) said that gender is significant for the water sector because it reflects different roles and responsibilities of men and women and determining their relations between them.

Nakayama (2002) specify that gender does not necessary refers to men and women, but it refers to the way their qualities, behaviours and identities which are particularly determined through the process of socialisation.

Nasr (1999) said that gender is associated with unequal power and accessibility to individual choices and resources is also limited between men and women.

Nyambe *et al* (2002) argued that it has been acknowledged that women should be able to play a prominent role in water management and their role should be strengthened. In the water policy. Nickson and Franceys (2003) specify that the role of women in water management has been highlighted and recognised in the 1977 United Nations Water Conference at Mar del Plata, the International Drinking Water and Sanitation Decade (1981-90) and the International Conference on Water and the Environment in Dublin(1992) which specifically placed emphasis on the role of gender particularly of women in water management.

Peria and Salones (2003) emphasise that the application of gender within policies and institutions leads to sustainable development interventions. For instance, Peter (2006) carried out 16 case studies on gender mainstreaming in the water and sanitation sector in rural areas of countries such as Brazil, Egypt, Pakistan, South Africa, Indonesia, Togo, Guatemala, Zimbabwe, Nigeria, Ghana, Nicaragua, India, Uganda and India. In these case studies, Postel (1992) and Van Hofwegen and Jaspers(1999) validated what happened when communities are involved and actively engaged in contributing to issues of providing clean water supply and sanitation from the perspective of gender. In this perspective, Nickson and Franceys 2003) said that it will ensure that women concerns of being the primary responsibility for water are not only

addressed but become part of the solutions. These case studies highlight that solution to water supply is contextual specific. One context that must be addressed must be related to the prevailing gender systems and the attendant gender division of labour that determines women's primary responsibility for water in the households.

The case studies show that in the pursuit of common goal promoted through innovation, dialogue, participation and collaboration, answers can be found that respond to the different interests of men and women based on the traditional gender paradigm.

Nash (2005) emphasis that the integration of gender leads to far more positive gains than originally anticipated. In overall, the whole community will reap significant dividends. Men and women will gain from gender integration, because it will contributes towards shifting power between men and women in terms of policy and institutions design and implementation.

Nyambe *et al* (2002) indicated that if gender is not taken into consideration or even integrated into the main policy and institutional framework , it will leads to gender disparities in information sharing among men and women on issues relating to water supply, accessibility, funding, users fees etc. It can also leads to the ineffectiveness of gender empowerment and participation in water management.

Namara *et al* (2005) explained that water policy and institutions frequently restrict the rights to women in the use and sustainable management of water, despite women recognised role in water management. However, in the rural areas, Nyambe *et al* (2002)highlight that women fetch water from a long distance, they know where the sources of water supply are situated , how to store it and how to take care of it. This gave them the knowledge and experience necessary to participate in the management of water as well as playing a critical role to the success of water supply in the rural context.

Gleick 2000) said that within the gender, there are two types of inequalities which include Horizontal and Vertical inequalities. These two types of inequalities are differentiated based on nature of cultural context prevailing in the society. Vertical inequality is normal inequalities which line households up

vertically and measures inequality over the range of individuals (Gleick 2009). Grafton and Jiang (2010) explain that Horizontal inequalities is viewed as being multi-dimensional because it is linked to political, economic and social elements but these are rarely measured in the same way as vertical inequalities. It is my own contention that Horizontal inequalities have the potential to affect household's wellbeing as well as social stability in a manner that is very serious, that is completely being different from the effects of vertical inequalities. However, the most effective way to correct inequalities in the water sector from gender perspective is through the application of water policy that is targeted at households. Grafton (2010) also said that the neglect of the gender as a classificatory device can therefore reduce the effectiveness of policy which in itself is not gender based. It will also limit household's right to participate in the water policy and institutions management because of the lack of implementation of policy that is gender focus. Grafton and Hussey (2007) indicated that if water is politically controlled it will limit households participation leading to the rights of people not recognised in the water policy. This will therefore, create a Horizontal inequality within the society. For instance, households will not be able to access water and have a voice in the water management of the water sector which might constraint their ability to address the water issues**.**

Nyambe *et al* (2002) demonstrated that because of the effects of the inequalities in the water sector from the perspective of gender, women bear the greatest burden in fetching water specifically in the rural areas of many developing countries. Although fetching water is an issue which is challenging the water sector, in the finding of my study, participants indicated that fetching water could be seen as a social opportunity in the sense that women getting together to meet and exchanging information on water sources which are safe for drinking, how to store water for domestic uses and how water is being managed at the local and problems they face in the collection of water from diverse sources**.**

2.6.5 HOW DO WE DETERMINE INSTITUTIONAL PERFORMANCE IN THE WATER SECTOR?

The link between water institutions and performance is undeniable in terms of determining the water sector. How institutions contributed to, or are affected by, the performance is significant in identifying the needs for institutional changes, which will depend on the current level of water sector performance (Dube and Swatuk, 2002). Institutions do affect the performance of the water sector through the application of policies (North, 1990, p.12). Furthermore, performance can be determined when policies have impacted on the rural communities, for example, improvement of water supply facilities, and availability of water at the households (Postel, 1992). If it is within an institutional framework when the effects of policy implementation are less than when compared to the overall outcomes of the water sector. In this regard, an institutional framework will serve as a condition, but not necessarily as essential conditions for institutional management performance (Postel and Richter, 2003). In this situation, an institutional framework will specifically reduce the uncertainty of actions taken by human beings, thereby providing a stabilising effect on the water sector (Dungumaro and Madulu, 2002, p.26). For instance, when an institution establishes the necessary allocation of rules within the water sector, it tends to bring about a justifiably equitable distribution of water; this only happens if the rules are applied alongside similar types of rules, such as monitoring mechanisms of water allocation and delivery systems and laws linked to the acceptable agreed practices of water allocations (Easter *et al.,* 1998, p.60). Institutional performance is also directly influenced by external factors, such as the: political situation; degree of economic conditions; increase or decrease in population growth linked to the demographic conditions; scarcity of resources; presence of institutional arrangements with resilient incentive features; and how it has integrated properties (Powell, 1998). These factors are seen to be able to yield tangible results in terms of water performance as compared to other rural areas where these factors do not great impact on the performance of water institutions (Wester *et al.,* 2003.p.20).

A policy paper published by the World Bank (2010) has underlined a number of aspects that determine how institutional performance in the water sector is

analysed, based on: the status of physical water infrastructure; supply–demand gaps; pricing gaps (water prices, versus supply costs); incentive gaps (water prices versus scarcity value of water); water coverage; continuous water supply; household connections; operations and maintenance; cost recovery; and sewerage collections. These variables, when assessed, will permit assessment of how water sector institutions have performed.

A study by Meinzen-Dick *et al.* (2004, p.10) emphasises that the performance of the water sector, like any other sector, depends greatly on: the strengths of institutions; how capable they are at improving coordination at rural and national levels; how they are able to delegate some of the management services to the local people; and their strength in introducing private sector involvement. These factors have to be supported by strong legislation, adequate systems of law enforcement, and efficient human development to improve the capacity of institutions (Power and Paul, 1991). The next section will discuss water policy.

2.7 **WATER POLICY.**

This section systematically reviews policy literature and connects it to the theoretical framework of the study in order to gain knowledge on the subject and identify research gaps in the water sector in line with the research question and objective.

Why discuss water policy?[7] How is it understood in the context of literature on policy? Water policy is significant in shaping how the water sector is managed. For that reason, policy is viewed as a linear model because it constitutes how the decision-making process is shaped in the context of a particular given area, and it also constitutes a formal position on a specific issue (Biswas, 1997, p.1). Therefore, this policy is then executed by the bureaucratic systems (Wester *et al* 2003). The principal assumption behind the concept of water policy is that it is purposive in terms of providing a specified course of action (Priscoli *et al.,* 2004). The policy has to be a projected programme of well-defined goals, values, and practices which are mainly decided by a specific coherent authority to be instrumental and categorised in the attainment of water supply (Estache

[7]Abernethy (1996) defines water policy as a legal structure designed to manage and provide good governance for the water sector. It defines rules and regulations for managing how the water sector should be operationalised.

and Rossi, 2002). Policy is conceived to simply indicate that it is a product of a linear model process which moves from one stage to another in line with agenda setting, decision-making, and implementation (Faragui *et al*., 2001, p.16). From this perspective, Scott (1994)states that policy includes agenda setting, decision-making, implementation, and evaluation. These stages have to flow in a logical way. With this sequence of stages, it shows that the authority implementing it follows a downward approach on how decisions will be decided (Feldeman, 2007, p.11). The implementation has to be within an institutional framework to accelerate how to achieve the planning and programming, and how to prepare and implement rules (Feldeman, 2007, p.22). The policy is viewed as a technical process based on bureaucratic decision-making guided by authorities. It gives direction on how to regulate the water sector, guiding the planning and development of how water resources are attained and allocated (Fisher, 1995). It also deals with how to ensure that people participate in the water sector, while also conserving the environment (Quentin and Karen, 2011). If policy does not achieve its intended goals in principle, blame is often directed at how policy was formulated, and how it was implemented by institutions or authorities (Quiggin, 2008). For example, a lack of policy direction in the rural water sector (linked to poor management) or shortage of water in communities will be attributed to the institution's implementation process (FAO, 1995, p.45). It raises concerns about the process of decisions and how they are executed by managers and other key stakeholders in supporting the management systems (FAO, 1996, p.24). Vermillion and Garcés-Restrepo (1998) point out that policy is not a definitive process, but it is subjected to constant changes in relation to how the water sector should be managed. For instance, a change might occur during the process of implementation for example, in the study by Abernethy (1996, p.25) demonstrates that in countries like South Africa, Malawi, and other parts of Southern Africa, policies were formulated to install water facilities in various villages, but because of the changing requirements of the states' water agendas, the intended outcomes of the policies did not benefit citizens in those countries.

Mazyimavi's (2002, p.19) work on "water administration" in South Africa demonstrates that those who have the power to implement policies might not implement the intended policies at their own discretion; this will have a bearing

on policies during the implementation stage. According to Bond (2004) , water policy has to be ruled based, either at national or rural levels, and it has to be seen as the necessary catalyst to stimulate the delivery and implementation of services. Many policies in developing countries are either insufficient, or non-existent, consequently leading to institutional failure (Raskin, 1997). The link between water policy and institutions must be analysed, because there is currently a gap in the literature. Botes *et al* (2003) emphasise that this link is strengthened through comprehensive integration of policy and institutions, to develop new ways of increasing water supplies, as well as improving the availability, reliability and quality of water delivered. There is need for institutions to coordinate water policies with local citizens; private sector agencies and NGOs in order to strengthen the water supply, which is at the moment missing in policies across developing countries (Raucher *et al.,* 2004). GWP-SATAC (2000) indicates that many developing countries for instance, Mozambique, South Africa, Lesotho and others have never been in a position of ensuring that water policy is viewed as a way of getting the local agencies and water providers to derive their mission statements and come up with actions for the water sector. Each agency and local people view policies based on their own understanding, and this has created a complexity in relation to how policy statements are implemented in the water sector (Rees *et al.,* 2008). However, water policy has remained vague in terms of its objectives and why it has been formulated in the first instance (Rees, 2001). For example, a study carried out by the World Bank (2010, p.24) highlights that in the southern African region, findings indicate that in Mozambique, Malawi and Zimbabwe, citizens were not even aware that policies were formulated and implemented; the findings also highlighted that the lack of knowledge of awareness of policy within the developing countries meant that citizens do not understand why clean drinking water is constrained in terms of accessibility. However, the lack of policy consideration towards the provision of water to citizens demonstrates that policy related to water supply in rural areas was a low priority (Renwick, 2001). What is unclear is how water policy will ensure that it addresses the needs of citizens and allow citizens to access water when they want it (Forester, 1999, p.29). However, the question of when citizens will be able to access water remains particularly challenging because of the lack of vision within the water sector

(Repetton, 1986). Presently, there is no single explanation for how water policy will achieve the management of water at the rural level, since many countries face the problem of water shortage, affected by the presence of drought, consequently affecting supply (Dagdeviren, 2008). Even though policies exist in most developing countries, their applications in terms of managing water in times of natural calamities remain unsolved at all levels of policy implementation (Roesner and Salas, 2004). This has led to policy being ineffective in supporting the delivery of clean water supply for rural households (Rogers and Lyndon, 1994).

In line with the above, there is need to consider how the policy is reviewed. The review of policy takes into account the effectiveness of the regulatory system in terms of permits issued to the private sector and the extent of water coverage, in order to learn lessons about how to improve the policy process (Franceys, 2000, p.26). Each country has its mode of water policy review(GWP 2000). Some countries have adopted strategies to establish steering committees in charge of water policy review, and if policy is seen as not enabling improvements in the water sector, then countries may focus on other key areas; however, this is not the case in a number of countries (Rosegrant and Binswanger, 1994). In many situations, the review of water policy is centred on understanding how regulatory systems work in order to address inconsistencies in legislation with the aim of providing a framework suitable for the implementation of policy at a rural level, which is crucial for the water sector (Fundanga and Mwamba, 1996, p.26). Even though policy is reviewed, what is lacking is the suitable strategic plan linked to policy statement in order to support the stages of policy implementation; for instance, countries in the region of southern Africa have not managed to develop a suitable way to review policy, as well as monitor and control the implementation process, at all levels of the policy reform(GWP 2000a). However, the key concern is the absence of key stakeholders (water users and local rural water institutions) to be involved in the policy review; this has made the entire process of policy review controversial in terms of its effectiveness and outcomes (Frederickson, 1992, p.23).

2.7.1 HAS THE WATER POLICY FAILED THE POOR CITIZENS?

In another study, Delange (2004, p.22) explains that regardless of the presence of water policy, the inadequate water service provision to poor people still remained a global critical issue. The lack of policy for the rural people has brought in three key critical problems which have indeed been documented in policy literature. First, a problem which is recognised as the largest problem is the ineffectiveness of water infrastructure or a complete absence of infrastructures for water supply (Grover, 1992, p.20). For instance, the specific role of water infrastructure is generally recognised in the policy; however, in developing countries particularly in countries in the southern African region it is totally absent. Some limited progress has been made in some countries, such as South Africa, but not in the rural areas, where the policy challenge still remains unattended (Gulati *et al*., 2005, p.45). Its absence poses a greater challenge to the storage of water and water facilities supplies and exacerbates water scarcity issues (Hall and Lobina, 2006, p.32). However, there is an urgent need to improve or evenly distribute water infrastructure across all rural areas where basic water infrastructure does not exist, or does exist but in a state of non-repair (Hamstead *et al*., 2008, p.21). This indicates that water policy is not yet sufficiently evolved and has led to weak water infrastructure facilities and institutions (Heyns, 2003, p.12). Furthermore, the volume of water storage capacity per person is very low in developing countries (GWP 2000b). In developing countries, such as in the Asia Pacific and Southern African regions, the lack of adequate water infrastructure has contributed to citizens being denied safe drinking water; the expansion of water infrastructure remains a major policy concern because it is insufficient to deal with the demand for water in rural areas (Hatibu and Mahoo, 2000). Due to the lack of insufficient water infrastructures and the ineffectiveness of policy, 1 billion people have been identified as having no access to water or improved water supply, and 2.7 billion people in developing countries remain without access to sanitation facilities; this number is due to increase in the coming decades (World Bank, 2010). Second is the problem of improved water infrastructures which do not supply water to poor people. For instance, in the study commissioned by the European Union (EU) in 2009, in which the EU co-financed some of most useful development

projects in Angola, Benin, Burkinafaso, Ghana, Nigeria, and Tanzania, the study concluded that:

> Out of 24 projects implemented in these countries, only 3 projects on water supply attained states objectives in improving water in general (World Bank, 2010).

The World Bank report also indicates that the failure of these water projects was due to the fact that the classical administrative system which had a top-down approach of water supply focused planning, which overlooked the local context; this was identified as the principal cause of water infrastructure investments. However, despite efforts to reverse the situation in many developing countries, this policy change did not add value on how to resolve the sustainability of water supply facilities in terms of operation and maintenance (Swyngedouw, 2005). For instance, in Malawi and Zambia, water problems still persist in terms of project delivery (Gleick, 2009, p.67; Douglas 1987). Even if water infrastructures are improved, if they are not installed near occupied households, they will not be able to deliver water services to the people (Gleick *et al.,* 2002, p.14). The main question is: what kind of strategy is appropriate for developing and other emerging countries to maintain their infrastructures and what type of policies are relevant to deal with such issues?

2.7.2 WHAT HAPPENS WHEN COUNTRIES HAVE GOOD OR BAD POLICIES?

Furthermore, this serves to emphasise that even when a country has good policy on paper, this does not take into account how the policy is applying which is considered to be the key determining factor (Syendasen, 2005a). What are the implications of this for water service delivery? Does it mean that a country with good policy will better manage the water sector and delivery outcomes? A review of case studies by Kampala *et al.* (2002, p.25) indicates that South Africa, as well as other countries in the southern African region, have very good water policies on paper, and they seem to be focused and implementable. However, the water situation still persists in terms of water supply and infrastructure facilities (Thompson, 1993). This was observed in Soweto (South Africa) where people are still struggling to get access to clean drinking water

(Rukuni, 1995). This might be attributed to how the state is committed to translate policy into action and bring it near to those who need water for their survival (Sabetier *et al.,* 2005). A study by Dungumaro and Madulu (2002) emphasises that good policy is recognised when people at a rural level have the opportunity to have their own institution within their jurisdiction in order to be part of the water policy implementation. If during policy implementation, people are left outside of the general policy framework, how can a policy succeed? In the review of literature, there is no case of policy success in this regard, and this poses the question: why are states not willing to promote rural small institutions for water provision? This is lacking in the current policy debate (Gleick, 2000, p.34). This can be seen in Malawi, where the state has partly implemented water policy, because other sections of policy statement are being implemented: for example, a section on water supply provision in rural areas (Gleick *et al*., 2002, p.24). According to Gleick (2000) indicated that , many countries are not in a position to totally commit to operationalisation of an entire policy because of the cost involved, as well as ineffective capacity at an institutional level to implement policy reform packages.

Basson (2010, p.26) explain that policy makers and other stakeholders have to continue developing appropriate policies and see how to harness clean drinking water provision to poor people. It is noted that developing water policies is not a simple task, but it has to be done in order to provide a clear direction on the course of necessary action (Gillard and Rees, 2009, p.55). It has been recognised that strategic policy framework gives direction to policy makers on how to drive water activities (Bauer, 2005, p.36). However, the article by Ehrhardt and Janson (2010) indicates that water policies in developing countries have a very broad approach because of water's unique nature as a special resource. The unique nature of policy is because it has to be applied in a specific context to improve the water situation and maintain equilibrium in a natural resource environment (Banergjee *et al*., 2008). This hasn't materialised yet because of several constraints within developing countries, such as those of a technical nature, lack of knowledge or capabilities, and the set-up of institutions (Global Water Partnership (GWP), 2000). In this regard, a study by Crase and O'Keefe (2008) emphasise that the challenges to water policy are

based on how the state can apply the correct procedures for effective implementation of policy at an institutional level.

2.7.3 HOW DOES WATER POLICY INFLUENCE THE WATER SUPPLY?

The literature on water policy indicated that between the 1950s and 1990s, a considerable amount of research was undertaken to examine issues such as water supply (Berkoff, 1997, p.32). This was because clean water supply was at the forefront of many debates in academic and professional domains (Bandaragoda and Firdousi, 1992). The debate aimed to find tangible solutions to the problems of water supply development, in the hope of attaining water sustainability in terms of supply requirements, so that citizens have the opportunity to gain access to water (GWP, 2000b). However, during this time, the aspect of water services was also well-observed, because water supply has to reflect water services' sustainability (Amery and Wolf, 2000, p.23). When there is water supply, citizens believe that water services are good and functioning, but this doesn't mean that water supply will lead to sustainability of water (GWP-TAC, 2000). This is one key area in which many policies have not managed to distinguish between the delivery of water and how to supply water to rural communities (GOI, 2002). In this context, water service delivery refers to the ability of institutions to make water supply availability to communities (Goldensohm, 1994, p.12). However, there is a long tradition of local government involvement in the provision of water services, especially in urban areas, which has constrained how the agencies involved in policy delivery effectively implement water supply policy (Gordon *et al.,* 1997, p.55). The power of the state influences how policy is delivered and shaped for a particular context and often based on the state agenda of using water as a weapon of water to weaken water institutions (Samad and Vermillion, 1999). The relationship between states and policy implementation is not well clarified in the literature on water policy (Gorgens and Van Wilgen, 2004). In this context, Berry and Mollard (2010., p.18) emphasised that when local governments do not consider rural water sector within their policies, and their policies are not situated within the rural context, there is tremendous impact on factors such as functions or roles of institutions, authority (regulatory), service providers

(delivery services), and financing and investment in the rural water sector. This raises a number of issues as illustrated in table 1 below.

Table 1: Current issues in water supply

What are the current issues in water sector supply?		
Key issues	**What are the direct effects on:**	**Key comments**
Water supply infrastructure	Supply	Infrastructure will constrain the supply of water to households unless it is well-maintained and promoted within the sector.
Technologies	Supply and demand	The lack of availability of technologies, such as water pumps, wells, and others, will consequently affect the supply, and therefore increase the demand for water.
Legal and regulatory framework	Supply and demand	The lack of property rights of the water supply is also at the core of water supply failure.
Institutions	Supply and demand	Limited scope for institutions to drive the rural water sector, as well as the non-alignment of policy and institutions has obstructed water supply.

Source: Kampala *et al* 2002, p.19.

In addition, Baietti *et al.* (2006, p.22) investigated two case studies in developing countries to determine the status of water supply in urban areas. One case study was conducted in Peri-urban and another in Uganda. The

analysis of these two case studies indicates that 40 per cent of people in the urban areas in Peri had access to water, while a further 38 per cent of urban people also had access to improved water supply (Vermillion *et al* 2000). One identified constraint was that despite the observed percentage of people accessing water, a high proportion of people were still lacking improved water, and the results of these two case studies also demonstrate that the water quality was equally affected (Grafton, 2010). This could have contributed to policy and institutions' performance in the delivery of water reforms (Samad and Bandaragoda, 1999). This is evidenced in the studies by Blomguist 1992 p.56) who demonstrate that countries such as India, South Africa, and Malawi (as well as other countries not mentioned here) have their water policies weakened by the fact that they are missing an important element of developing a comprehensive demand-driven approach to water supply.

According to Grafton (2007, p.11), however, where the state has considered how to strengthen policy and institutions in the delivery of water service provision, some positive results have been attained. For example, in Botswana, 66 per cent of the water hand pumps are owned by wealthy people; the ownership of these pumps is based on the idea of self- supply (Grafton and Hussey, 2007, p.10). The self-water supply refers to the individual financing: its own supplies and maintains water supply facilities according to the costs of maintenance (Turshaar 2005). This has permitted people to own water supply rather than leaving all water problems to be solved by the state or the agency involved (Grafton, 2010, p.24). Therefore, it is argued that individual initiative presents the best way to change policies to provide delivery of water supply within a broader perspective of the policy framework (Shiklomanoy, 2003). This has not yet happened in many countries in the world for instance, in Zimbabwe, Mali, and Ethiopia, and in other states where people are still depending on a dilapidated water supply (Tynan and Kingdom, 2002). Therefore, accessing water has become much more complex in terms of ownership of water supply facilities (Brinkerhoff and Crosby, 2002). In these states, the water sector is in the hands of authorities, which set policies and shape implementation. In the researcher analysis, the argument is that the studies and scholars cited in this section have not identified similar initiatives in policy changes or the reasons

why the concept of self-water supplies was successful in those countries (Swallow *et al.,* 2001).

Additionally, what could these states do to promote the concept in these countries? Similarly, study by Count and Young (2003, p.20) emphasise that although water policy has been considered as a necessary issue for the effectiveness of the water sector in developing **c**ountries, unfortunately the formulation of national water policy regarding supply through water infrastructure development, control, and maintenance has received very little interest and attention in recent decades. Grover (1992) argues that it is because policy makers were focused on simply investing water supply facilities, but not necessarily on ensuring that water infrastructures were properly managed for the benefit of citizens. This led to the deterioration of water supply facilities in many countries, while citizens were increasingly denied access to good quality water. This poses real policy challenges, and the trends continue to the present day (Grover, 1992). Why have countries not yet fulfilled their promises to achieve sustainable water supply for their citizens? On the other hand, research by Rampa and Puig (2011) provides broad knowledge on water supply policy in developing countries and states that water supply has to be in interests of citizens and policy has to be much flexible to supplement efforts made by other players in the water sector. In a study by GTZ (2004, p.22) 'on sharing the water experience in developing countries' demonstrates that countries have not yet adopted such an approach towards water supply in rural development, although it does exist in urban areas. However, Guerra *et al*. (2010, p.29) argue that with such policy ideas, governments will be able to develop policies geared toward the supply of water for poor. Gulati *et al.* (2005, p.20) further indicated that when states are involved in the management of water supply, then it is important to understand that the effectiveness of policy outcomes is questionable due to bureaucratic procedures and the effects on favouritism, with little attention paid to water schemes and projects in areas where the states do not have an interest. The result could be an uneven distribution of water resources for citizens; some will be able to benefit from policy reforms, while others will be excluded from the policy reforms (Bashah *et al*., 2002, p.22). As a consequence, the ineffectiveness of policy will be observed, which might hamper the implementation of envisaged reforms (Hague, 2000, p.1).

Coyaud (1988) indicates that the main challenge is to gain a better understanding of water supply issues within the overall policy framework in order to address issues, such as issuing a water permit to own and manage rural water infrastructures, and how to improve the quality of water supplied. Other issues will also include financial arrangement, regulation enforcement, and settlements of water users (UNWWAP, 2009). These issues have to be within the legal and regulatory framework;[8] not addressing these issues has led to unclear roles on how policy should be implemented *(*Bruns and Meinzen-Dick *,* 2000, p.35). The main question is how the poor will cope with water problems, and how institutions will be strengthened to manage the water supply if policies remain static (UNWWAP, 2006). This challenge has to be recognised within the water policy framework to meet the demand for water in rural areas, because if ignored, the water sector will be subjected to serious decline, thus constraining future water supply (Burton and Molden, 2005, p.25). The next section discusses institutions and the effect of policy.

2.8 THE EFFECT OF WATER POLICY AND HOW TO ASSESS OR EVALUATE SUCH EFFECT

Brinkerhoff and Goldsmith (1992) emphasise that the concept of effect implies both positive and negative effects which are influenced by both water policy and institutional reforms, and their implementation during and after the reforms. In the context of this study, effect will relate to the poor quality of water, lack of water accessibility and affordability or vice versa in a rural community. This research will also take the opportunity to capture other impact related to the effect of policy and institutions in the water sector which might be observed during the analysis if it emerges in order to determine the success of policy and institutions. Komives *et al ,* (*2007*) explain that when impacts are positive, they are likely to improve performance of the sector, but when they are negative, they are also likely to determine the negative effects of policy weaknesses and failures within the communities. He also indicated that when they are negative,

[8] Bruns and Meinzen-Dick (2000, p.12) state that regulation of the water sector is explained in many cases as a set of instruments with diverse applications being implemented by the government, independent agency or institution, with a view to protect consumers and others within the environment. It will also include, inter alia, laws, rules, and order which are necessary in permitting the management of this particular sector.

they will impact significantly on people's perceptions of institutions. Furthermore, he argues that when these effects are recognised and identified, they will highlight the problems encountered in the process of reform implementation at a household level (Blackman *et al*., 2004, p.27).

The use of the concept of effect in this study has supported the process of evaluating the effects of policy and institutions on the poor and their access to water services. Briscoe (1994, p.45) finds that little research has been done in developing countries to understand the outcomes of institutions and policies. In contrast, a study by Proag (2006) demonstrates that although the impact of both institutions and policy is viewed in general terms, there is still a general agreement among scholars that it has not been effectively understood in the rural context. Very few studies have analysed the effect of water policy in economic terms; for instance, the study by Bandaragola and Firdousi 1992) evaluates policy effect while taking into account decision support mechanisms that could have a stimulating effect on the potential policy options, as part of the overall framework of policy analysis. In the same study, Bandaragola emphasises that policy options involve water quality and quantity questions, as well the process in which the policy is applied in the water sector (ibid, p.14). Chenje and Johnson (1996, p.40) specified that the social and economic consequences of such policies have to be understood in the reform process. In this context, an effective evaluation of policies and institutions has to ensure that the decisions have to be supported by both policy and institutions in order to improve the water sector (Charkasi, 2000, p.14; Berndtson and Hyynen 2002). For instance, the change in the regulatory systems might have had effect on water users, and particularly the poor, because of the cost added to the design and applications (Chileshe *et al.,* 2005, p.33).

The process passes the costs to water users rather than to the states' institutions; people will have to pay additional costs to access water services, and this will impact on how institutional governance is attained (Koundouri *et al.,* 2011, p.26). It might also affect water users in different ways; for instance, it will increase the cost of acquiring a water permit and costs linked to the water maintenance infrastructure because the states does not want to be part of the cost-bearing systems (Chitonge, 2007, p.28). With this in mind, Briscoe and

David (1988, p.16) explain that this is considered an important area which policy and institutions have to be evaluated by to stand the test of time. A report by the UN (2003, p.53) highlights that impacts of policy and institutions are evaluated taking into account the conditions of the policy reforms, and how institutions operationalised such reforms. For instance, the report indicates that over half of the people in Sub-Saharan Africa and in other developing countries are still having problems accessing water, and specified that nearly 1.885 billion rural people, in developing countries do not have full access to clean water, out of which 38 per cent belong to sub-Saharan Africa.

The same UN report estimates that Sub-Saharan Africa alone loses 45 billion of hours per annum of collected water. The effect is measured in terms of domestic water use and water accessibility and consequently impacts on people's health. This clearly shows that water remains a problem for both policy and institutions, and this leads to a degree of social and economic consequences (World Bank, 1998; 2001). Tapela (2002) indicates that rural areas in Zimbabwe and South Africa were being ignored by policy makers; meanwhile, the water crisis in the village of Pungwe-Mutare resulted in acute water shortages for domestic use and led to an outbreak of cholera, with 30 per cent of the total population of the village being affected. These unfortunate events could have helped policy makers and project managers to shape policy direction for the future by seeking to understand policy impacts on the poor in this rural community (Chitonge, 2010, p.27).

Boelens and Hoogendam (2002, p.14) explain that unsustainable water policy and institutions will make communities unsustainable in terms of water services, resulting in a policy gap created by the fragmented institutions and identification of what agency is in charge of the water sector at a rural level.

If this is recognised by developing countries, the impact of policy at a rural community level will shape future policies to and make them adaptable and effective to the needs of rural people.

Based on the literature review above, table 2 below gives a summary of the key areas and how various studies have been linked to this study.

Table 2: Key summary of the main literature review

Authors	**Areas of focus**			**Significance of the literature studied**	**Limitations of literature studied**
	Institutions	Policy	Effects		
Bandaragola and Rehman(1995), : Widening gap between theory and practice .	The review of this paper presents a general framework of water institutions, specifically focusing on the management of the water sector in five countries.	In terms of policy, the study's emphasis is on how the water sector could be managed using water accounting.	The study does not highlight specific effects in the river basin if the proposed conceptual framework is applied in terms of issues related to management at the basin	The study has provided a new methodological framework for river basin studies. It has identified key elements as the main driver of the water sector management at the river basin level. These drivers include physical systems, water accounting, socio-economic situations, and	Although the emphasis is on institutional diagnostics to understand water management in the river basin context, its diagnostics do not reveal the key factors to be taken into account, such as the water supply, how to meet the demand for the poor, and the aspect

			level.	performance based on institutional diagnostics. The diagnostics provide a basis for a better understanding of the issues of water management at all key identified elements within the conceptual framework.	of water infrastructure within the proposed framework.
Fant, C. *et al*. (2013): Impacts of Climate Change on Crops, Irrigation and Hydropower in the Zambezi River Basin	The study does not put much focus on institutions assessing their roles. The topic of institutions was missing in the analysis of the overall study.	Main emphasis is on the need to inform policy-making decisions on the projected water supply demand for crops and irrigations by	The impact of temperatures in reducing precipitations will consequently result in the reduction of water	This study offers opportunities for future studies to deal with issues of water availability in the Zambezi river basin where local studied detailed is required.	The study did not fully cover the aspect of policy and institutions as the main driving forces for water supply services, or deal with mitigations of climate change at a

		2050 as result of the envisaged droughts and floods.	availability and crop production. The farmers will be affected in this regard.		local level. These two key elements are missing in the investigation because the study focused on biophysical measures looking at the source water supply, crop production, floods events, and hydropower generation to supply water.
Schlasser, C.A. and Stizepek, K. (2013) on Regional Climate Change of the Greater Zambezi river basin'	This is a hybrid study based on precipitation variations to understand how seasonal variations will	The policy issue was not well articulated in terms of supporting the	The main emphasis was on the possible effects of the	The study is significant as it provides a basis for how to be well-prepared for the envisaged climate	One of the identified key limitations of such a study is that it is limited in scope with a lack of linking

	occur up to2050. This is a projection study on the future of climatic change and the influence on the pattern of seasons. However, again, the concept of institution was not emphasised to assess if it can be used in order to support water supply.	envisaged climate change variations linked to seasonal change in the district.	predicated climate variations on seasonal fluctuations and the way it will impact on the agricultural activities, as well as the effects on floods and droughts, which impact water availability.	change in the district. It also provides opportunities to policy makers to make effective decisions on how to prepare for the likely water availability scenarios in the district.	policy and institutions to the issue of water availability at a regional level. The study could have investigated all policies and institutions in charge of the water sector in order to assess broader water problems. Although it is a regional study, the local water availability is missing in the study findings.
Saleth, R.M. and Dinar, A. (2004) The Institutional	This is a critical analysis and review of	The study discusses policy		The review of the literature intends to	The study ignores the strategic roles of

Economics of Water: a cross-country analysis of institutions and performance.	empirical literature pertaining to institutional change in terms of performance in general and, more specifically, for water sector development. It also provides a foundation for understanding institutional analysis, looking at the institutional dimension, institutional diagnostics, and physical and institutional performance. For instance, the problem observed in the water	dimension in relation to the water sector and also indicates that policy is the main challenge facing the water sector at local, national and international levels. However, this demonstrates that the answer lies in water policy, which includes how it is formulated and		justify how the present study was conducted in the Zambezi basin in terms in order to consolidate a conceptual framework.	water institutions, and the likely links that might exist within the water policy and institutional framework between institutions and policy implementation – for example, between enforcement and monitoring the water sector in terms of reforms. It is also difficult to quantify institutional issues which have seriously discouraged policy-

	sector emanates as a result of the inherent limitations of the present institutions in dealing with new issues emerging related to water allocation management, which has remained a critical challenge to policy-making decisions.	implemented.			makers from the evaluation of institutions' policy impacts on a rural level.
Chang, H.J. (2011): Institutions and Economic Development Theory and History	Examines the current institutional discourses and economic development. In developing countries generally, there are poorly established institutions,	The study did not critically support the link between institutions and policies generally being promoted or		It provides a basic theoretical argument on how institutions are defined and understood within a broader economic perspective in terms of regulations which	There are some theoretical problems that have been identified with the dominant discourse on institutions and economic development. It

	consequently leading to poor understanding of how institutional changes are viewed, identified, and implemented. This presents the question of institutions' behaviour, which means that each institution behaves differently in accordance with a specific environment. The key question is institutional quality reflects better application of rules and regulations for water supply? or is	how it will affect sectors in which the rules and regulations are applied. Institutions stand-alone while a policy dimension is missing within institutional discourse.		might lead to either effectiveness or ineffectiveness of institutions in context of where they are operating or were established to manage diverse sectors.	suffers from one key theoretical problem: it ignores the possibility that any economic development influences institutional change and, consequently, affects the sectors.

	institutional quality affected by other external factors such as politics, and resources				
Anand, P.B. (2010) Scarcity, Entitlements, and the Economics of Water in Developing countries	Within institutions, the study emphasises that water scarcity emanates as a result of institutions that are either weak or non-existent. It is also a result of technology.	Scarcity therefore has to influence policy in order to deal with the inequalities in terms of water accessibility. This poses a problem in terms of water management.	The likely effect is the lack of social institutions available to deal with the water sector and the identified water scarcity problems. The inequalities in water accessibility	The concept proposed by Anand captures the key elements of institutions and policies, which are the key factors to be considered when dealing with issues of water scarcity in the studied context. The issues of water accessibility for the poor is also emphasised throughout the study.	Even though policy and institutional aspects are highlighted within the conceptual framework, how these can be of benefit became a critical challenge in addressing the issue of water supply. However, these two will constitute the main focus of the study

			become an important issue.		under investigation in order to supplement other studies with similar academic interests.

Source: Summary of key selected literature relevant to the field

In table 2 above, this review of the key literature is appropriate to the main arguments put forward throughout this chapter. It has also specified some limitations of each study in order to justify why the studies were reviewed. It has also enabled a better understanding of why the studies were undertaken in terms of their significance to this study. The researcher did not summarise all the literature analysed in this study; consideration was made towards the key prominent studies in the field of policy and institutions linked to the water sector, while others were analysed as supplementary literature to strengthen the arguments in this study.

2.9 CHAPTER SUMMARY

The chapter has extensively reviewed useful literature on water policy, institutions and impacts. The water policy and institutional theories were discussed in an attempt to understand the interrelationship which exists between policy and institutions.

The literature also indicates that the issue of water policy and institutions is significant in determining the performance of the water sector. Within the institutional framework, there are key institutions which define how the water sector is managed. Institutions and policies are both defined in terms of either informal or formal. In this context, informal institutions do override formal institutions in terms of water practices; informal institutions have become well-established in the water sector and are now widely practiced within societies. The key problem is that informal institutions have constrained how formal institutions can apply rules, laws and guidelines in the water sector.

The chapter has also presented the conceptual framework which was derived from the review of other conceptual frameworks, in order to provide a direction to water policy institutions' service provision. It has come up with components such as water institution and policy being part of the implementation process of understanding the water sector. The next chapter will discuss the research methodology used in this study.

CHAPTER 3 METHODOLOGY

3.1 OVERVIEW

Previously in chapter two, an attempt was made to review literature on institutions and water policy which explores the existing gap in the understanding of the effectiveness of the rural water institutions in the delivery of policy for the supply of rural water and identify impact at the households level which I, the researcher, has been permitted to uncover in this new study. This has made it possible to develop a theoretical framework that clarifies the empirical reality of water policy and institutions, with a specific focus on answering the research question following a review of the literature.

This chapter discusses the relevance of the application of the methodology and the applied methods of data collection and analysis, which are central to the objectives and question of this study. A research methodology is always determined by the type of research being conducted, and should be kept in line with the research's intended aims and objectives. In this context, specific research question, theories, and key concepts identified during the literature review emerged as key factors which determined the focus of this research. From this perspective, the goals of this chapter are (a) to justify the use of qualitative methods within the research approach, explore the strengths and limitations of this approach, and explore the qualitative research methodology used in this study; (b) to determine how the research methodology has been used in this study so far and how it has guided the data collection, analysis, and development of the theory; and (c) to create a better understanding of the background and fundamental guidelines commonly used in different approaches to grounded theory. This chapter is divided into three sections which describe the data collection stage of this study, which consisted of semi – structural interviews. This chapter concludes by clarifying the analytical approach used to understand the empirical data.

3.2 GENERAL PERSPECTIVES OF GROUNDED THEORY METHODOLOGY

Strauss and Corbin (1998, p.47) explain that grounded theory methodology provides useful tools that ensure that researcher learns about participants' perceptions, attitudes, and feelings in relation to a specific area of study. However, quantitative data may also be useful if the researcher is interested in a large sample (Yin, 2003, p.27). The grounded theory methodology provides a very powerful framework when the objective of the study is to explore participants' perceptions in a well-defined context (McGracken, 1988, p.20). The grounded theory methodology shares some specific characteristics with other qualitative methods which correspond to those used in this research study: it focuses on the everyday life experience of participants; it values participants' perspectives in the study environment; it facilitates an interactive exchange process between the participants and the researcher; and it is based on descriptive data and relies on analysis of words extracted from participants' recollections of their experiences (Morgan, 1988, p.35). The use of the grounded theory methodology in this research study will allow for the establishment of a new theory consisting of interrelated concepts such as institutions, policy and impact which capture the reality of the experience of participants (Strauss and Corbin, 1998, p.56). Furthermore, a research study guided by the grounded theory methodology does not seek to generalise statistics in order to achieve study objectives, but rather aims to offer an explanation that makes it possible to predict a studied phenomenon based on the empirical study of the data collected (Patton, 2003, p.24; 1990). The data collection is usually based on semi-structured interviews, but also considers other sources of data such as the literature review and other information deemed relevant to the study. From this perspective, a grounded theory methodology provides guidelines that can be used when collecting data; it also suggests how to manage the coding of data, and advocate the use of memo writing and, and theoretical sampling in the study (Bakeman and Goteman, 1986, p.56).

3.3 DATA COLLECTION AND ANALYSIS IN GROUNDED THEORY

The grounded theory methodology uses a form of purposive sampling known as theoretical sampling, participants are principally selected based on specified criteria set by the researcher and based on the findings of the literature review (Yin, 1981). The choice of participants for this research is explained below.

3.3.1 WATER POLICY OFFICIALS

Water policy officials are responsible for dealing with water policy formulation and design and regulating water demand and supply. By law, they are entitled to design and implement programmes and projects, coordinate water policy implementation and promote of public institutions. A study by Chitonge (2010) indicates that they are considered central actors within the policy system as they promote the so-called culture of water regulation.

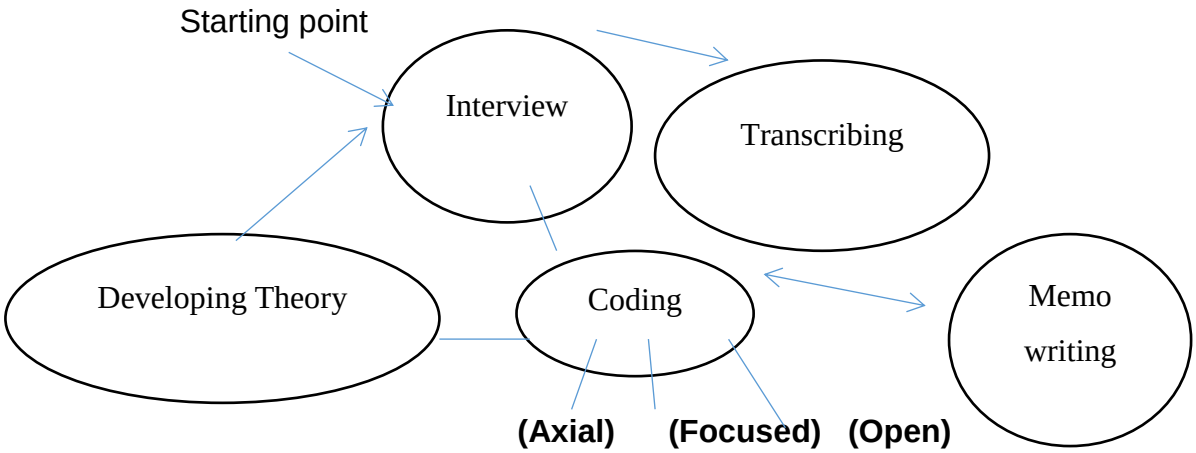
The main reason for interviewing water officials was because they deal with, among other scenarios, problems related to the management of water sector resources and the implementation of laws and regulations which manage environmental issues such as poor water delivery or non-delivery of quality water. Thus, the purpose here is to examine the role institutions play in the policy making process, particularly with regard to their relationship with the water sector in terms of implementation.

3.3.2 MEMBERS OF THE VILLAGE WATER COMMITTEE AND HOUSEHOLDS

The goals of interviewing both Village Water Committee members and households were: (a) to prove that the local community is not the target population of water policy reform; (b) to prove that the failure of water policy and how this affects people are not factored into the design and implementation of policy responses; and (c) to demonstrate that the construction of water policy is a social process used to seek truthful accounts of water problems and through which the claims of both policy makers and affected members of the public interact.

In this context, the researcher has become familiar with the early research findings, which indicate that there are issues that need further exploration. Henceforth, the sampling processes are still guided by the on-going research review theory in order to support the methodology applied in the study (Strauss and Corbin, 1998, p.25). Davis *et al* (2005, p.5) emphasises that the grounded theory methodology, data collection and analysis are interconnected and based on sequential systems, as illustrated in figure 3 below:

Figure 3: Steps involved in the development of a grounded theory



Sources: Strauss and Corbin, 1998, p.24; Miles and Huberman, 1994, p.45.

Figure 3 above shows a variety of research approaches which are generally centred on data collection and can thus be compared. It can help to guide the process of data collection (Strauss and Corbin, 1998, p.25; Miles and Huberman, 1994, p.46). The identification and development of useful variables will not principally take place prior to data collection, but will be crucial to all the data collection systems (Pranee and Jean, 2008). Variables or concepts are mainly raised by participants; they are later developed, conceptualised and finalised by the researcher (Patton, 2003, p.45). Data collection is often conducted until a theoretical conclusion is reached in other words no new ideas or concepts are allowed to enter into the research process (Chih, 2003, p.23).

However, in qualitative research, often interview questions which are used in many studies gave the participants very little space in which to express ideas significant to them in their specific context (Punch, 1994). Due to this, the

researcher will need to extract phenomena of interest to the study from the interviews in order to assign them specific conceptual labels, known as codes (Symon and Cassell, 1998, p.32). In any study using qualitative methods, coding is important because several codes can be grouped into a more abstract category; this process eventually permits the researcher to develop a theory (Bogdan and Taylor, 1975, p.69).

3.3.3 INTERVIEW CODING AS PART OF THE LOGICAL PROCESS

The coding of interviews is often used to capture what is expressed in the interview data, as well as to learn how people talk about their experiences so the researcher can act upon their findings (Silverman, 2000, p.45). Within the grounded theory, coding is regarded as the first step in data analysis because it allows the researcher to move from a specific statement to a more abstract statement based on interpretation of the data collected (Charmaz, 2006, p.20).

The grounded theory methodology emphasises that a study has to use several coding techniques in order to examine participants' accounts of their experiences at different levels during data collection and analysis (Yin, 2003, p.24). There are different types of code. The first one is open coding, which is also known as the line-by-line coding system; this type of coding provides a good point of departure that helps to identify the initial phenomena and produce a useful list of themes significant to the participants (Patton, 2003, p.46). Conceptual labels are developed by the researcher and attached to almost every line of the transcribed interview in an attempt to capture what was said by the interviewee (Saul and Bryman, 2004). The choice of labels has to correspond to the participants' context and fully reflect their own words (Symon and Cassell, 1998, p.13). These codes are known as vivo codes. However, codes are then assigned to each participant's own words and specific statements in order to develop useful concepts; this process is the starting point of the analytical process of this study (Silverman, 2005). When the researcher carries out line-by-line coding, it helps to understand the process aimed at clarifying the interview notes interview notes and interpreting them in new and unfamiliar ways that permit the researcher to test the original assumptions of the research (McGracken, 1988, p.26). Strauss and Corbin (1998, p.45) have

suggested that it is important that the researcher use sensitive initial questions to help them grasp the trends indicated by the data. For instance, the questions “Who are the key players involved in a particular situation?” and “What are the key players’ definitions and meanings of the phenomena?” could prove useful (Burr, 1995, p.33).

The next coding step is more abstract than open coding and is known as focused coding or sometimes selective coding (Charmaz 2006). Focused codes are often used to understand several lines or different paragraphs in a transcript, and require the researcher to choose codes that represent the participants’ original voices (Yin, 1981). When open codes are used as a starting point, using focused codes at a later stage permits the researcher to verify the adequacy of their initial concepts or statements (McGraken, 1988, p.23). Focused coding will be applied and therefore tested on further interview notes interview notes in this study (Symon and Cassel, 1998, p.25). The next step in coding is known as axial coding, which can be defined as the act of ensuring the categories identified are related to the subcategories and aligned in accordance with their properties and dimensions (Strauss and Corbin, 1998, p.56). The use of axial coding is meant to add depth and structure to the existing categories (Reinharz 1992; Patton, 2003, p.27).

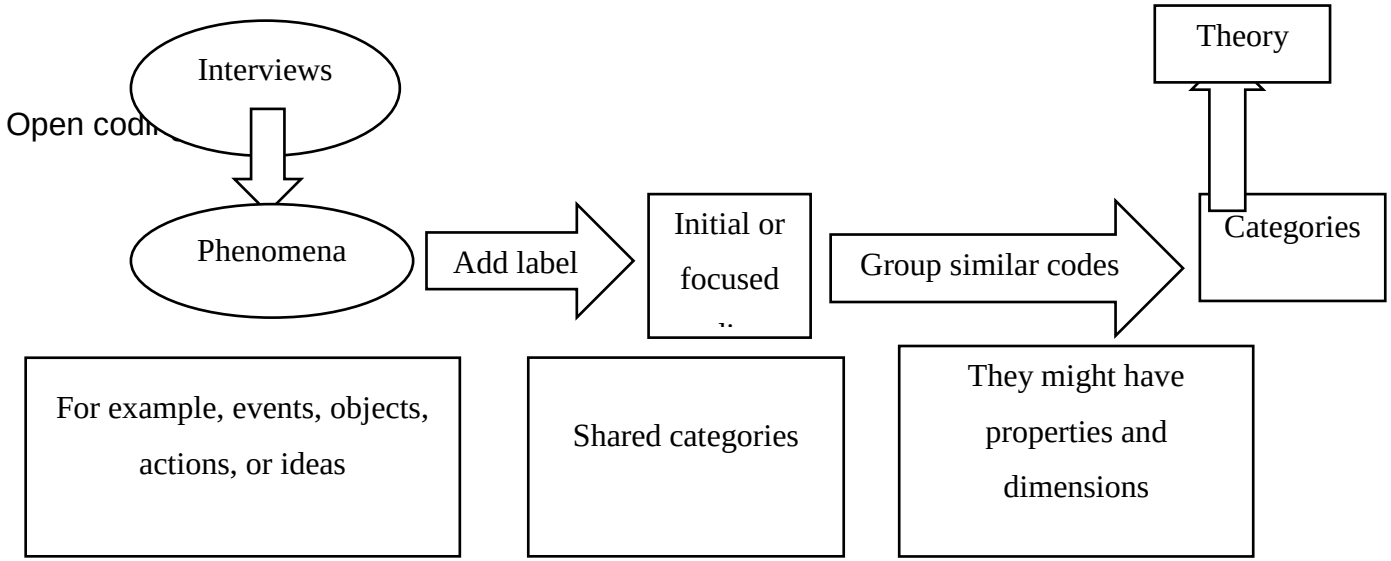
Charmaz (2006, p.67) explains that axial coding allows the researcher to reassemble data broken apart during line-by-line coding. Strauss and Corbin (1998, p.58) emphasise that the use of axial coding permits the researcher to investigate the specific conditions of the situations described in the interviews, assessing participants used in this study actions and their likely consequences. Charmaz (2006, p.67) has warned that axial coding is limited in that it applies an excessively rigid and formal framework that has to be linked to the data analysis. In order to deal with this challenge, Charmaz suggests that the researcher has to carefully select a framework and that the focus should be on developing a less formal structure that permits them to reflect on categories and subcategories. The researcher has to be in a position to establish connections between the two in order to make sense of the data drawn from the interviews (Yin, 2003, p.65). The most abstract level of coding is known as theoretical coding, and permits the researcher to explore the established

relationship between two categories (Silverman, 2000, p.12). This allows the researcher to instate several rules or analytic families of coding in order to permit an advanced analysis of the investigated area (Glaser, 1978, p.43).

3.3.4 DEVELOPING CODING CATEGORIES

Strauss and Corbin (1998, p.25) depicted the overall process of how to develop coding and develop a theory in the simplified figure 3 below.

Figure 1 : Process of coding development



Source: Strauss and Corbin, 1998, p.56.

It should be emphasised that identified categories have to “earn their way” into an emerging theory (Glaser, 1978, p.69). The grounded theory methodology does not in any way quantify data in order to find meaning in it. It is based on the frequency with which categories appear in interview notes, in order to determine their significance for the participants (Patton, 2003, p.25). This might cause categories to vary according to their properties and dimensions; ‘properties’ are often considered to be general or specific characteristics of a particular category, whereas ‘dimension’ is the location of a particular property in a particular continuum (Strauss and Corbin, 1998, p.57). For example, the category ‘institutions which supply water’ could have a very high number of properties related to spending and dimensions which range from low to high spending.

McGracken (1988, p.29) has emphasised that the central or core category is a very distinctive category that normally has to sit at the heart of the developed theory to allow the researcher to summarise what is happening in the data analysis. All the other main categories should relate to the central or core category, and how frequently data appears across a range of samples correlating the data back to the central theory in one sample is not going to create any meaningful analysis that can determine the frequency of data. It helps the researcher to see how frequently the central or core category appears which will need to be clarified in the data analysis (Hertbert and Bruce, 1996, p.33). The development of the core category for this research study is briefly discussed in chapter four, which focuses on data analysis.

According to Kvale (1996, p.44), coding provides a ‘skeleton’ for the data analysis. Charmaz (2006, p.45) sees coding as a critical step which provides a link between the collection of data and the development of theory; it also shows the connections between empirical realities and the researcher’s views on coding. Coding helps to understand problems, issues to be identified, likely concerns and how the research relates to the wider field being studied (Strauss and Corbin, 1998, p.24). Patton (1990, p.101) emphasises that coding has analytic power because it has the potential to provide explanations and identify patterns It also makes it possible to use the collected data to compare codes,

categories and findings in order to crystallise ideas which will form part of the new theory (Yin, 2003, p.52). Scholars involved in the application of the grounded theory methodology have diverse views about when it is most appropriate to undertake the literature review (Strauss and Corbin, 1998, p.25). Patton (1990, p.102) advocates the view that it is necessary to wait until the researcher has made their initial findings, so they do not develop preconceived that might bias their research. This study followed the advice of Charmaz (2006, p.65) and carried out an initial literature review before the data collection phase. This was done to allow the researcher to learn whether any similar studies have been conducted in the area of interest, and satisfy the university's requirements for research proposals.

3.3.5 SUBSTANTIVE AND FORMAL THEORY

Tashakvoki (1998, p.27) argues that the grounded theory methodology generates directly relevant data. The grounded theory relies on the original data gained through original research. There are two types of distinctive theories that emerge: substantive and formal. The substantive theory provides a suitable theoretical framework based on interpretation and, to some degree, explanation of a specific context; in other words, this type of theory is used to provide explanations and manage the problems identified in a specific area of interest (Patton, 2003, p.34). However, the formal theory is more abstract and provides a theoretical framework when dealing with generic issues that can be applied to a broader range of concerns and problems (Simataa, 2005). For instance, a substantive theory might be about a very limited or specific area such as familial relationships or professional associations within the field of education; contrary to this, the formal theory deals with how culture is constructed and how ideologies and stigmas are formed and developed (Creswell, 2003, p.88). Charmaz (2006, p.76) has suggested combining and conceptualising the results of the study using diverse substantive grounded theories in order to develop an approach which is general and subsequently adheres to the formal theory. The substantive theory could help the researcher to refine the formal theory; in other words, formal theory can be related to numerous substantive theories (Yin, 2003, p.35). Malcolm and Tim (1996, p.24) have pointed out that grounded

theories are often considered substantive because they focus on specific problems situated in unique contexts.

From this perspective, this study has developed a substantive theory that provides a unique approach to data collection and interpretation in order to best explain the specific area of interest. This research aims to determine the significance of institutions and policy to the water sector in the Zambezi rural basin in Zambia; the research uses data on rural location and participants' personal perceptions of institutions and policy. This study does not have the scope needed to raise very specific questions about the nature of the study area, but this is why it uses a substantive theory instead of a formal theory as it would require a more general approach to the broad area of study. For instance, understanding other types of institutions and policy data from other cultural settings.

3.3.6 WRITING MEMOS

Kvale (1996) emphasises that, for grounded theory studies, memos are important to coding and developing suitable categories. Memos are basically notes taken that permit the researcher to continuously generate thoughts and ideas that will aid the advancement of the study. Memos are highly significant because they help the researcher reflect on interviews and support the allocation of codes to particular pieces of dialogue recorded during interviews (Patton 1990; McGracken, 1988, p.23; Tashakvoki and Charles 2003). These initial ideas and thoughts are highly relevant because they help the researcher identify key ideas important to the research. It is necessary for the researcher to write memos immediately after reading and coding an interview (Strauss and Corbin, 1998, p.25). At a more advanced stage in the research process, these initial thoughts and ideas are often represented in memos and the researcher will have the opportunity to revisit, reflect upon, and consider them for different analytical purposes (Symon and Cassel, 1998, p.26). Memos can also help to develop new research questions, since they can be used to contemplate participants ' perceptions and compare interesting concepts identified in the interview notes and the literature review (Miles and Huberman, 1994).

3.3.7 OBJECTIVIST AND CONSTRUCTIVIST APPROACHES TO GROUNDED THEORY METHODOLOGY

Strauss and Corbin (1998, p.67) and Charmaz (2006, p.56) have argued that the grounded theory methodology has advanced since its inception in the 1960s in the United States. This is emphasised in the writings of Glaser (1978, p.45), who has been recognised as one of the most influential scholars involved in the development of the grounded theory methodology. *On the Discovery of Grounded Theory*, the 1967 work by Glaser and Strauss, specified that the researcher should begin collecting data with a blank mind, which means that the researcher should not review existing literature in the first instance if they wish to conduct a truly inductive research study. Glaser and Strauss (1978, p.25) argued that subsequently, theory is being built from observation of existing theories and derived an analysis which reflects the reality of the studied world. As argued in Glaser and Strauss book. It is then presumed that each person who wants to understand will see things from the same perspective, permitting them to share a common point of view in terms of the conclusions they reach on a particular research question. What is important for the researcher is to be aware that he or she should take a passive stance in order to let data emerge; this is a main characteristic of the objectivist paradigm because the researcher will be involved in learning, constructing and interpreting participant's experiences (Mishler, 1986, p.35). An important alternative view in social science research is what it is known as the constructivist or interpretivist view. The constructivist grounded theory methodology is backed by Kathy Charmaz's book, *Constructing Grounded Theory* (Charmaz, 2006, p.20). This approach to the grounded theory methodology places emphasis on participants' experiences and how they construct their realities in terms of the world (Strauss and Corbin, 1998, p.28). Hence, knowledge constructed by participants and the researcher with the aim of interpreting empirical evidence pertaining to the study areas can be studied using the grounded theory (Symon and Cassel, 1998, p.23).

A divergence of opinion between Glaser and Strauss, the authors of *On the Discovery of Grounded Theory*, emerged during the 1980s; after this, Glaser hypothesised his own understanding of the grounded theory methodology (Glaser, 1992, p.56). Strauss, together with Corbin, also came up with a

completely different approach to the grounded theory methodology (Corbin and Strauss, 1990, p.67; Strauss and Corbin, 1998, p.45). Contrary to Strauss, Glaser stipulates that analysis of data generally presents the same facts to each researcher, indicating the existence of some form of objective truth. On the other hand, Strauss argues that any researcher engaged in the grounded theory has to actively ensure that their theory is developed from data. Therefore, it is normally expected that every researcher places emphasis on different useful aspects of the data they collect; the angle they choose will depend upon their background, beliefs and values (Yin, 2003, p.26).

Charmaz (2006, p.65) has argued that when taking into account Glaser and Strauss's and Corbin's applied approaches to the grounded theory methodology, it must be assumed that there is an objective, external reality which makes it possible to adopt positivist and objectivist points of view. Corbin, on the other hand, states that a constructivist approach is necessary when using the grounded theory methodology because it assumes multiple social specific realities. Charmaz does not support the argument that theory is discovered, and instead emphasises that the subject being studied needs to be revealed in a much more interpretive way; this is because the participants and researcher have embarked together on a journey that sees them both engaged with constructing the reality of the phenomena being studied (Charmaz, 2006, p.20).

This research has been largely stimulated and guided by Strauss and Corbin's and Charmaz's views on interpretative systems, and in particular the application of the grounded theory methodology. The researcher has a different view as he does not agree with Glaser's position that the study of reality has to be objective and neutral; this divergence of opinion is particularly true when its concerns the intangible and individual study areas of policy and institutions.

While as I have a conceptual framework, it is used as a starting point to inform the researcher the key central ideas and concepts to be further developed from the field work. The use of grounded theory to interpret the ideas and concepts from the field in order to develop a theory to understand the real world.

3.3.8 LIMITATIONS OF THE GROUNDED THEORY METHODOLOGY

Every methodology approach, regardless of its nature and suitability, presents some limitations; for instance, the grounded theory methodology is known to be more complex and time consuming than other approaches because its coding and memo writing processes can become tedious during the analysis of data (Charmaz 2006).

This research study has principally dealt with a very time consuming process of coding that uses specialised software to help speed up the process of organising and analysing the collected data. Charmaz (2006) and Denzin and Lincoln (2008, p. 45) emphasise that the grounded theory methodology can be used to explain a specific phenomenon or construct a theory, which are very subjective processes relying only on the researcher's ability to analyse data. This study has mainly followed the methodological guidance of Charmaz (2006, p.67) and Strauss and Corbin (1998, p.54), using their suggestions to help organise and analyse the data emerging from the interviews. West (1996, p.20) emphasises that many previous studies have used the grounded theory methodology in an inappropriate way; as Malcolm and Tim (1996, p.64) point out, the flexibility of the method means it can be used to provide justification for studies lacking methodological strengths. Vermillion *et al.* (2000, p.67) criticise a number of researchers for using mixed methods such as ethnography and phenomenology, and indicates that they have used the grounded theory methodology in order to analyse their studies' findings.

3.4 JUSTIFICATION OF THE QUALITATIVE CASE STUDY

The researcher analysed the situation of water in the rural area of the Zambezi basin in Zambia during trips to the area. The researcher also accessed policy reports and documents related to water policy implementation in the Zambezi basin; these were accessed during the preliminary fieldwork and were of great value because they provided to researcher with insights relevant to the justification of the case study. The researcher learned that some research had already been conducted on poverty in the Zambezi River basin prior to his preliminary fieldwork. Nevertheless, there have not been any studies on the

institutions and policies relating to water in the Zambezi rural basin. This study aims to increase knowledge of this area.

This case study has both intrinsic and instrumental value. It has intrinsic value because the researcher seeks to better understand institutions and policy, and their impacts on the water sector within the context of a rural community in a specified context (Patton, 2003, p.29). It also has instrumental value, because it can provide insights into the discursive construction of water policy and institutions (Miles and Huberman, 1994, p.26).

To conceptualise the social reality in the Zambezi basin and understand the appropriate determining or contributing factors, a qualitative approach proved the best option. The researcher used a case study to investigate the contextual issues of water policy and the roles of institutions. Denzin and Lincoln (2008, p.45) explain that a case study allows a better understanding of the social realities embedded in the wider context surrounding the subject being studied. Sabine (2003) defines a case study as a kind of exploration which helps to understand a social phenomenon in a particular context in terms of specified objectives. The case study can involve an individual, a limited group of people, an institution, a nation, a society or a particular community (Symon and Cassel, 1998, p.21).

3.5 HOW WAS THE DATA COLLECTED?

In order to gather useful data, the researcher spent five months in the rural Zambezi basin. The first two months were spent with the National Water Supply and Sanitation Council (NWASCO) and in the Village Water Committee headquarters this is where the researcher had extensive discussions on the research and its intended objectives and outcomes with the Executive Director of the NWASCO and the Chairman of the Village Water Committee. This period was used to develop a good rapport with relevant figures and obtain the consent of the institutions being investigated as part of the research. The researcher also made contact with households in the area. During meetings with both the Executive Director of the NWASCO and the Chairman of the Village Water Committee, it was agreed that they would introduce the researcher to households in rural areas. The researcher started collecting data

in the fifth week, because of the time taken in arranging the interview in the Zambezi rural basin. The method used to interview participants was qualitative using interview as a research tool to gather insights from participants. The interview was grouped into three categories; first of all, the researcher interviewed officials from the NWASCO, followed by members of the Village Water Committee and lastly households. This arrangement was aimed at first of gather information from experienced officials in the areas of policy, institution and impact. With a better understanding of the obtained information guided the researcher while interviewing members of Village Water Committee and households. This process seemed to be effective, as the researcher was able to interview all the targeted groups and understand the views of participants.

Studies by Yin (2003; 1981) states that any research concerned with understanding, the arguments of policy makers and other key players in the water industry must be carried out with an awareness of water policy reform and the role of institutions in the delivery of water policy in terms of demand and supply, as well as the impacts these policies might have in a specific context.

Sykes (1991) argues that interviewing participants makes it possible to explore individuals' differences, inconsistencies, meanings, and arguments. A study by Patton (1990, p.12) stipulates that interviews should provide answers to 'how and why' questions. He further states that conversations between the researcher and the participants should aim to gain insights, rather than test knowledge or simply categorise answers. The central concern of this study is to understand how some types of water policy issues are related to institutions and how these issues impact the Zambezi basin.

Hayes *et al.* (1992, p.11) mention that the interview process should involve the careful formulation and wording of questions, including relevant issues faced by the interview subjects. For instance, this could involve mentioning water policy issues and the impacts of institutions, and conceptualisations of new areas of policy interventions in the water industry. Miles and Huberman(1994) also state that the researcher should involve discarding questions that are found to be unimportant at the end of the research.

According to Shedish *et al.* (2001, p.29), there is evidence that semi-structured interviews have certain limitations in research which aims to investigate the social implications of events with a beginning, middle, and end, such as the implementation of a new water policy. In contrast, unstructured interviews afford richer information in terms of storyline and narrative (Fine *et al.,* 2003). In this study, to a certain extent, this shortcoming was resolved by having sections of the interview schedule relate specifically to water policy effects, agents, and scenarios. Furthermore, an in-depth analysis of the interview responses, which used argumentation analysis, permitted the researcher to identify core meanings and beliefs.

Berdi and Anderson (1974, p.27) indicate that another limitation can be the control the interviewer exercises over the participants. Berdi also states that when attempting to lead the conversation, the interviewer may avoid broaching some important subjects to the interviewee if they are in some way responsible for the water situation, as is the case with policy makers. Consequently, some information may not be revealed. This shortcoming was overcome by attempting to open the discussion with seemingly less important issues that may not directly relate to water policy such as sanitations in order to make participants reflect sanitation then linked it to water policy for further discussion. Once this was accomplished, additional information subjects were introduced and, in this way, the information gap was bridged. In this thesis, the general purpose of the interviews was to investigate the discursive dimensions of water policy and the impacts of institutions. Gathering secondary information on plans and programmes relating to water policy, institutional issues and water management was central to covering the research objectives and question.

The participants were grouped into three sectors: water institutions, the Village Water Committee and households (see table below3). To differentiate these respondents, it is necessary to explain that the participants who are members of the Village Water Committee play an important role in its running on a regular basis and contribute to its functions within the Zambezi basin. The households were respondents who were not involved in the Village Water Committee's activities, but were part of the rural Zambezi rural basin community. Households do not assume any responsibility or participate in the activities of the Village

Water Committee, but are there to observe how water policy is implemented in the rural community; they are largely preoccupied by their household activities. However, for water institutions, policy makers were interviewed to gain insights into their knowledge of water policy and institutional roles in the Zambezi basin. Within the policy system, these are individuals who make policies, design programmes, and coordinate responses to water crises and water provision and demand issues. Interviewing all of these participants permitted the researcher to explore the subjects' positions in relation to the water policy impact on the households in terms of health, and water supply in the Zambezi basin and discover the meanings the participants attached to water policy.

Table 3: Key participant target groups

National Water Supply and Sanitation Council (NWASCO)	Village Water Committee	Members of households
15	15	10

Source: Data collection.

In line with this table 3, the researcher managed to apply the grounded theory methodology based on qualitative methods: the semi- structured interview and the review of documents and non-participatory field observation. Among policy makers, the researcher interviewed seven women staff and eight men. For the Village Water Committee, the researcher also interviewed eight women and seven members and for the households, the researcher interviewed five women and five men. This interview strategy provided a well-balanced structure in order to capture various perceptions.

The interview questions is divided into three parts: part one is concerned with institutions, part two deals with water policy, and part three deals with the impact of policy and institutions on the poor. The interviewer put these questions to policy makers working at the NWASCO, members of the Village Water Committee, and members of households in the Zambezi rural basin. This is illustrated in table 4 below:

Table 4: Interview questions

Institutions	**Policy**	**Effects of policy and institutions**
• **Objective:** • To develop a better understanding of institutions operating in the water sector and supporting service provision.	• **Objective:** • To examine policy effectiveness in the water sector.	**Objective**: • To understand the effects of the policy implementation process on the poor in order to judge its effectiveness and identify further areas of improvement in the rural water sector.
• **Questions related to institutions**	• **Questions related to water policy**	**Questions related to institutions and policy effects**
• What do you think about the role of water institutions in the following areas?	• What are the challenges of water management within the framework of water policy reform observed since the	• Could you explain what the impact of water policy has been on your health in relation to water quality?

• Water delivery • Support to water infrastructure development • Policy implementation • Distribution of water services • Creating an enabling environment for water accessibility • Improvements to water quality • Provision of modern water sources through bores and wells	introduction of policy reform? This question is intended to get participants' views on the historical background of water policy development and its regulatory framework and highlight key challenges.	
•	• What do you think about the present water regulatory systems; do they favour both urban and rural areas? This question is intended to gain insight into the regulatory systems of the water sector in order to understand the effectiveness of regulatory	• What is the effect of water policy on promoting clean, accessible drinking water in your community? Please elaborate in detail.

	systems for both rural and urban areas, with a particular focus on water sector development in rural areas. • With reference to the second question, could you specify what institutions are involved in the regulatory systems? What are the specific reasons why are institutions involved, and others not involved? The question on the institutions involved in the regulatory system is meant to obtain information on whether or not the process involved with regulating water is participatory. • Are you satisfied with the current institutional water framework, or is there anything you would like to propose for it to change? This question is also	

	meant to understand if people are satisfied with the present water policy framework in order to see if there are opportunities for future development.	

Source: Interview questions.

3.6 DESIGN OF THE RESEARCH FIELDWORK

The purpose of the fieldwork was to obtain first-hand primary and secondary information related to water institutions and water policy in the Zambezi rural basin.

The fieldwork took place in two stages: the exploratory fieldwork was conducted between June and July 2011, and this aided the researcher in designing the methodology discussed above for the final fieldwork. The final fieldwork was carried out from January to May 2012, the process took five months in total, and involved contact with 15 professional policy makers working at the NWASCO, 10 members of households, and 15 members of the Village Water Committee in the Zambezi basin in Zambia. Originally, the researcher planned to interview 50 participants in total but ultimately only managed to interview 40 participants. The other 10 respondents did not participate because they had other commitments at the time of the fieldwork.

For the success of the data collection, the researcher designed the fieldwork to take into account the specific nature of the research, this is reflected in the objectives and methods of the data collection. Table5 below shows the methods, key target participants, research objectives and envisaged data collected.

Table 5: The design of the research fieldwork

Specific methods permitting data gathering	Key participants	Objectives and envisaged data collected
Review of documentation	The National Water Supply and Sanitation Council (NWASCO) offices Village Water Committee (VWC) offices Central Statistics (CO) offices Nongovernmental organisations' (NGOs) offices	The main idea was to gather secondary information based on various reports published on these institutions' water related activities, policies and implementation systems. Annual reports on institutions' performance in the water sector were reviewed; unpublished reports, articles, and bulletins were scanned.
Semi-structured interviews	Senior officials of both NWASCO and VWC institutions and members of households	To get information on water policy, institutional roles, and the effect of policy.
Non-participatory observation	Organised field visits by NGOs and other related gatherings	To develop a better understanding of how NGOs deliver water services, and how it is possible to interact with and exchange ideas about the water sector.

Source: Data collection.

3.6.1 PURPOSIVE SAMPLING

Studies using grounded theory often use theoretical sampling; this is because some data has to be collected and analysed in the first stage of the research process (Strauss and Corbin, 1998, p.34). In this regard, theoretical sampling has to be applied in order to determine what type of population the researcher is interested in. For this study, purposive sampling was chosen for the qualitative study process (Patton, 2003, p.14). With permission from the water institutions, 10 participants from households, 15 policy makers, and 15 members of the Village Water Committee were sampled so they could participate in the qualitative study**.** The sampling selection process was based on their belonging to specific categories; for example, their knowledge of water policy and institutions was a determining factor. Participants in the case study constitute the study unit of the analysis, because they were the only people with the capacity to provide the necessary information about the experiences under investigation. They refer to the people who work with institutions not the household members. The households were involved because they use water as part of their daily life (this is particularly true of the household category). The next section will discuss the interview process.

3.6.2 INITIAL INTERVIEW

All the interviews were carried out using note taking, which helped the researcher to later fill in the gaps identified during the interview process. Note taking has an advantage over tape recording, because it allowed the researcher to capture aspects of the participants' non-verbal expressions participants; for instance, their body language (McGracken, 1988, p.25; Brewer 2002). This can provide additional insight into the research study area (Strauss and Corbin, 1998, p.12). Douglas (1985, p.86) indicates that the use of note taking facilitates data collection and makes it possible to preserve the information as it is presented or claimed by the participants. A study by Symon and Cassel (1998, p.20) mentions that interview notes allow other researchers to have direct access to what is being claimed, and allow appropriate analysis of a particular

problem. This makes sure the analysis, as Morgan (1988, p.13) suggests, can be subject to public scrutiny and minimises bias in the interpretation of data.

During the interviews, the researcher began by explaining the objectives of the research study as follows: The aim of this research is to examine institutions and water policy in guiding the delivery of water sector services in the rural area of the Zambezi rural basin, and evaluate the effects of institutions and policy on the poor.

After participants understood the aim of the study, one participant asked why the Zambezi rural basin had been selected for the study; the researcher answered by explaining it was because there are few studies exploring the district that seek to understand how institutions and policy have improved the water sector. The researcher also informed participants that the research was being carried out for academic purposes, and the key interest of the research was seeing water supply improved in the near future through the publication of the study findings. Publication of the research might attract interested donors and encourage the Zambian government to deal with the issues present in the water sector.

Those interviewed came from a variety of professional context; for instance, the NWASCO members were involved in policy design and implementation. The Village Water Committee was the most engaged group because its members are information providers, and they represent the group most affected by government policy reforms. The interviews focused on perceptions of water, water legislation, water rules and regulations, and the effect of policies have on the community (see the interview questions attached in appendix 3). The interview process took, in most cases, about one hour; semi- structured interviews were conducted and based on the research questions. The researcher travelled to the rural area of the Zambezi rural basin, and this is where the interviews took place. The researcher interviewed 40 people in total (15 policy makers, 10 members of households, and 15 members of the Village Water Committee). Interviews with policy makers from the NWASCO were held in their respective offices; interviews with members of the Village Water Committee were held in the rural community centre; and interviews with members of households took place in their respective homes.

Choice of House Holds

The 10 selected households constitute a group of participants including head of the households, and women. The researcher selected the households using a data base provided by the Village Water Committee in order to ensure that they are selected based on their non-involvement in the water management as well as based on their own experience in fetching water from various sources. The selection took into account both women and men consideration. The researcher interviewed five women and five men.

The researcher collected all the necessary information from participants until it was found that there were no further questions to ask, or until there were no areas left which the researcher had to explore with the help of participants. When the researcher reached this point, he stopped the interview and thanked the participant. This indicates that the researcher reached a theoretical saturation point when exploring the views of the participants.

The researcher took four months after the interviews for data analysis, using the time to write memos and develop coding, as explained in the data analysis in chapter five. This process helped the researcher to ensure has strengthened his responsibilities and gained an in-depth understanding of each participant interviewed.

The researcher also gave participants a chance to verify the results emanating from the research data collection process in May 2012. This was done by allowing them to review the entire interview notes obtained from the interview process when the researcher organised meetings with them. Three additional meetings were organised in May 2012 in order for participants in the study to verify that what they said was accurately expressed and that they were happy with the notes taken and felt they reflected what their thoughts were at the stage of data collection. This was done to ensure that each participant was convinced that what he or she said was recorded exactly, and reflected his or her opinion in relation to the study. The next section highlights the specific criteria used in the selection of participants.

3.6.3 CRITERIA USED IN SELECTING PARTICIPANTS

In selecting participants, the main questions are what is the best approach to selecting participants and how can it be enacted? The researcher first studied the approach used by Creswell (2003, p.20), which states that a researcher must develop a pool of potential participants in order to gain deeper knowledge of their professional backgrounds and historical context. This selection process helped to evaluate whether or not they had already participated in similar studies and had similar knowledge of water policy and institutions' effects, acquired either as a result of their work or having been involved in another study. The evaluation of participants' historical backgrounds permitted the researcher to judge whether participants' past knowledge would affect the outcomes of the study. The researcher collected participants' records from the NWASCO database. The aim was to draw diverse participants, so participants were selected according to fixed criteria. The researcher used criteria such as geographical location, participation and non-participation in previous related studies, knowledge of the subject, and membership of the Village Water Committees, and being resident in the Zambezi basin, which in the case of households was critical to obtaining information.

3.6.4 CONTACTING PARTICIPANTS

The researcher contacted the participants through email and telephone to initiate preliminary contact and identify if they met the criteria to be part of the research. First of all, the researcher wrote an email to the Director of the NWASCO, requesting permission to undertake the study. The Director gave the researcher permission to access the database which enabled him to identify potential participants. The researcher also established a dialogue with the participants before the process of gaining consent was initiated. The next section discusses the field observations.

3.6.5 FIELD OBSERVATIONS

As illustrated in table 5 above, the field of observation was purely non-participatory because it allowed the researcher to be part of the field trips visits

organised by NGO Care International in order to observe its programme on water activities and find out if the NGO Care International activities were significant to the research study. Denzin and Lincoln (2008, p.15) indicate that, during observation, the researcher has to observe, listen, and look at how participants behave, recording anything which might contribute to the study being undertaken. In applying this method, the researcher should observe what participants respondents do, say, discuss and how they interact with each other during meetings. While in the field, the researcher had the opportunity to become an observer of both the Village Water Committee, and the NWASCO; this enabled him to observe discussions of issues with the water sector at the rural level. The researcher also had an opportunity to be part of a field trip organised by the NWASCO to the Zambezi River area; this allowed him to observe various discussions on the water sector ranging from policy making to policy implementation and other related areas. The researcher also participated in a meeting organised by the Chairman of the Zambezi basin area, where the researcher observed discussions on the water sector in relation to rural households and on why people still do not have water connected to their houses. Before participating in these observations, the researcher had to seek permission from the Chairman of the Zambezi basin and from the local district authority in Zambezi. While making observations, the researcher took notes and these involved looking at participant's behaviours, actions, and reactions to discussions. The researcher paid particular attention to oral communication and body language. The main purpose of the observations was to complement the data obtained during the interview process and strengthen the validity of the data analysis. However, one interesting observation was that, during the field trip, participants, particularly those from the household category, felt that the researcher presence could solve the water supply problems in the village; one participant asked the researcher, "Have you come from overseas with solutions to solve the problems of the water sector and our social needs?" Another asked the researcher, "Are you from the government or are you working in collaboration with donors to improve the water situation?" From these questions, the researcher's first impression was that people in this area are desperate to get things done in terms of water services. The next section provides a review of secondary data as part of the data collection approach.

3.6.6 DOCUMENT REVIEW

In order to draw a more detailed picture of the case study and complete the analytical framework, secondary information and relevant literature on theoretical issues relating to water policy reform and institutions were sought out and analysed. Documents and newspaper clippings were obtained to flesh out the institutional case study of the Zambezi basin, which is concerned with water policy impacts in Zambia. Content analysis was conducted to identify the main issues that arose as a result of water problems identified in the Zambezi basin between 1990 and 2000. Moreover, the content analysis dealt with the socio-economic consequences of the problems and how they affected people's interpretations of water problems, the claim making process, and institutional responses at the local level. The search for and collection of secondary information was carried out by exploring official and non-official resources, as mentioned in chapter two, which included publications and policy documents from the NWASCO, the National Office of Central Statistics (OCS), Water Aid, the United Agency for International Development (USAID), the World Bank (1992; 1994; 1995; 1997; 1998; 2001; 2010) and other international institutions. At the government level, secondary data was obtained from the Ministry of Water and Energy Development, the Ministry of Housing, the Local Government Authority, the Ministry of Health and the Zambia Irrigation Board; other unpublished materials useful to this study were also used.

In order to understand the structure and function of the water policy framework institutions in the Zambezi basin, and explore the water policy institutional reform process, a number of policy documents were reviewed. These included policy reports on water policy theory and political economic of water sector. Other documents cited in the literature review chapter two were also used as secondary information sources. After analysing the collected literature and documents, the researcher had a general idea of the relationship between knowledge and the policy making process in the institutional framework context.

To help understand problems with Zambezi institutions in relation to their impacts on the local community, various documents were consulted (Saleth and Dinar, 2004; GWP-SATAC, 2000; Nyambe *et al.*, 2002; Anand, 2010; Ministry

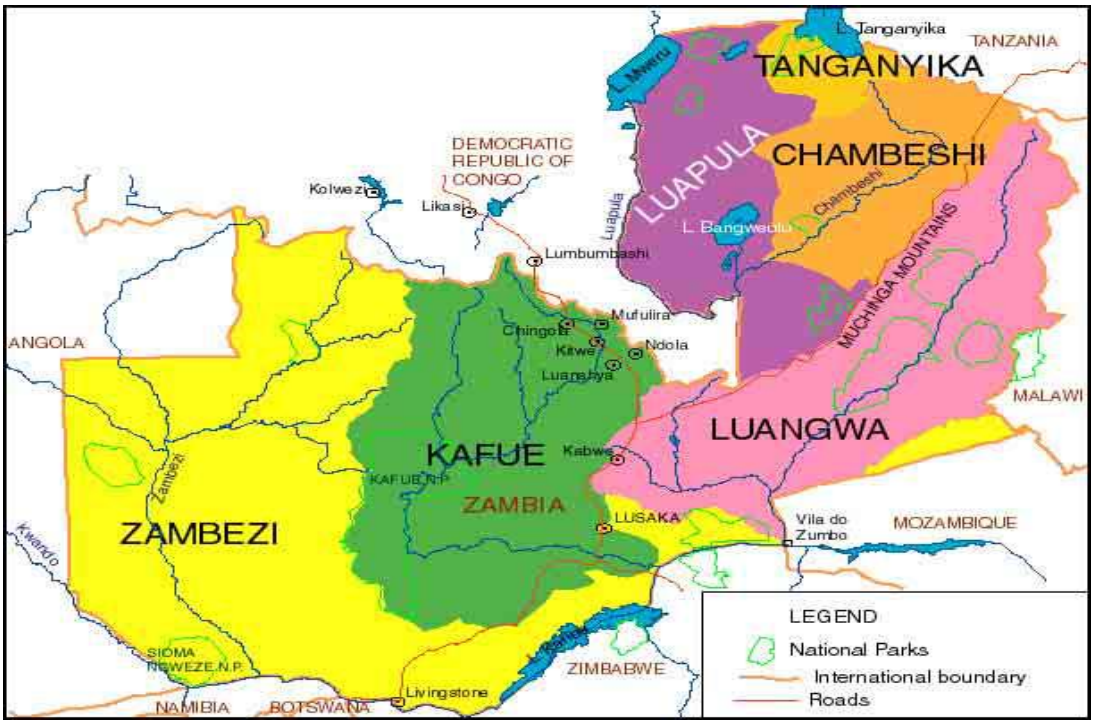
of Housing, and Spatial Planning, and Environmental Ministry, 2000; Mazvimavi, 2002; Kampala *et al.*, 2002; Ministry of Agriculture and Cooperative, 2002; NWASCO, 2010; and other useful documents , because there was a need to obtain a detailed picture of the failings of the NWASCO and the Village Water Committee in terms of their institutional responses to the water needs of the people. Also, newspapers were examined to understand responses to policy implementation processes and the likely impacts of these processes on the Zambezi basin, the key actors involved and the main arguments these actors use to in framing in clear way their thoughts, The press office of the Zambezi River Authority kindly provided the researcher with back-dated newspapers for the extraction of information and statistical data useful to support the empirical evidences. However, a study by Kothari (1985, p.22) states that, despite the value of information obtained through secondary data, there is a concern that this data might be out-dated and its validity consequently very limited; therefore, the findings of other research studies can compromise the efficacy of the secondary information. A study by Dawson (2002, p.23) further indicates that while it is always important to start with secondary data for qualitative studies, the data is often biased; at the same time, it shouted by noted that this kind of information can help the researcher develop a better understanding of the subject being investigated. Yin (1981, p.12) emphasises that, in order to avoid bias and strengthen the validity and reliability of the data gained from qualitative research; a researcher should always consider the primary data to be more relevant and important.

3.7 **STUDY LOCATION – ZAMBEZI RURAL BASIN**

The name Zambezi means ‘Great River’ in both the Tonga and Lozi languages. Previously, Zambezi was known as ‘Yambezi’, which was pronounced as ‘Le-am-by’. The name Le-am-by means ‘heart of all’ (NWASCO, 2010, p.23). The name has both ancestral and historical backgrounds in both languages. This area includes the fourth largest river in Africa, after the Nile, the Congo Democratic River (or Congo), and the Niger. It is also the largest river to discharge into the India Ocean (Kampala *et al.,* 2002).

Zambezi is a rural area situated in a north-western province which has historically been ravaged by droughts and floods (GRZ, 1998; 2006, p.57). In recent decades the frequency and severity of these climatic hazards have increased tremendously (NWASCO, 2010, p.28). Its total population is estimated at 65,964, based on the most recent census data conducted in 2008. In the last seven years, Zambia has had to endure droughts in 2000/01, 2001/02 and 2004/05, while floods occurred in 2005/06 and 2006/07 (Government of the Republic of Zambia (GRZ, 2009, p.24). A study by Gleick (2009) indicates that the impacts of these droughts and floods include inadequate water discharge and the consequent lowering of the water table, the drying of boreholes and rivers and the inundation of water points and sanitation facilities, especially in rural areas. The map of Zambezi below, in figure 4, shows how the geographical catchments of Zambezi's water resources have been affected by annual variations in rainfall. A study by Chitonge (2010, p.23) explains that the district is particularly vulnerable and experiences critical water shortages during drought conditions, despite its potential to hold large reserves of water. Furthermore, he states that climate change is a major factor which defines social and economic life in Zambezi. Chola (2003, p.12; NWASCO 2000.p.20) indicates that the area has seen rapidly changing climatic patterns in the past three decades, with lower than average rainfalls, shorter rainy seasons and hotter dry seasons. Chola also indicates that flash flooding and regular dry spells within the rainy seasons are usually followed by outbreaks of diarrhoea, cholera and other waterborne diseases, especially in rural areas of Zambezi (ibid, p.25).

Figure 2: Map of Zambezi rural basin



Source: Zambia Map

A study by GRZ (2003.p. 78) indicates that climate change is often blamed for problems with the supply and delivery of water and sanitation services in both rural and urban areas. However, a report by the United Nations International Strategy for Disaster Reduction (UNISDR, 2005, p.35) indicates that although climate change has had a significant effect on reducing the amount of rainfall in the sub-tropical region and has affected water quality, it needs to be considered within the management framework of the water sector and appropriate practices towards water cycle management need to be adopted.

A study report by the Republic of Zambia (GRZ 2006, p.56) indicates that the incidence of dry boreholes, receding surface water catchments, occasional flooding, and diarrhoeal infections due to poor sanitation in Zambezi (in Zambia's north-western province) are recurring issues that exert considerable pressure on the government, local authorities and other sector stakeholders. Given the above challenges, this area of study is one of the many in Zambia which require that particular attention to be paid to it for similar studies (GRZ 1949; 1994.p.45). Changes to the government's water policy and a lack of strong and robust water institutions in the district mean there is cause for concern over the operations of the water sector as well as a need to address the challenges faced by this province (NWASCO, 2009, p.19). During the

2000/01 and 2001/02 periods, intense water drought afflicted the Zambezi basin district. 7,600 households either had no water or, if they had, the quality of the water was very poor and the supply was limited. According to the NWASCO (2008, p.57) study report on the same drought period, the most affected areas were Chilenge, Lipesa, Mushili, Ngambele, Nyamundezo and Kangani experienced waterborne diseases of the skin which led to a suspension of piped water. The population was unable to cope with the effects of the drought and other natural calamities which had real effects on the water in the Zambezi basin (GRZ, 2003.p.24). However, as mentioned in the report by NWASCO (2007, p.87; NWASCO 2007a; NWASCO 2007 b), a rapid assessment of the effects of drought was undertaken. However, no study was envisaged to determine the implications of water policy and its role in the delivery of reform in the sector. A study by the GRZ (2004, p.24) reported that the Ministry of Housing and the Local Government Authority provided the necessary information on what had happened to the public through radio, television, and newspapers. The scale of the problem was huge and its impact significant in various rural areas (GRZ 2005.p56). This is documented in the study by NWASCO (2010, p.55) which was commissioned a few days after the drought happened, to determine the likely causes of the phenomenon in order to ascertain what had happened. According to Muyoyeta (2004, p.20), the investigation highlighted that, because of the effects of the drought, the rural areas that had been affected needed to be provided with a short-term water supply. Yet it did not look into the roles played by institutions in the delivery of water during the crisis or in the time before it. Muyoyeta also declared that this has become a political issue with institutional dimensions. Muyoyeta said that the problem emerged due to the failure of policy makers to take preventative measures and adopt sound water policies that were sensitive to the living conditions of the local population (ibid). The next section discusses key ethical issues.

3.8 **ETHICAL ISSUES**

This research involved human interaction and that interaction took the form of interviews during data collection. Therefore, it is important to seriously consider ethical issues in relation to this study. Creswell (2003, p.29) indicates that any

research which uses qualitative methods of investigation involves ethical considerations because of the nature of the human interaction between the researcher and their participants. Charmaz (2006) states that the process of research data collection will always create some tensions, which are likely to emerge due to the research aims and the participants' rights.

The researcher's first task was to inform participants about the research study in a very simplistic way to help them understand the research topic on water policy and institutions in detail. The researcher requested that the leaders in the Zambezi rural basin facilitate a community forum where participants learned about the research; the forum provided opportunities for participants to ask questions prior to being interviewed. The forum was meant to gain the trust of community members. The researcher also obtained permission from the leaders of the Zambezi rural basin before the research begun. The researcher informed participants about the purpose of the study when soliciting their consent; this involved explaining the input expected from participants (including the time required for the interview) and the likely risks and benefits (psychological and social). Participants could withdraw at any time because they were participating in the study on a voluntary basis.

The second task was to ensure that confidentiality and privacy were protected; the researcher maintained clear boundaries between what he was told by participants and what he told participants during the interview. Since an interview is a social conversation, it is based on the give and take principle, and while the researcher took a lot of information from participants, he also provided information to participants when they asked questions and wanted further clarification. The researcher emphasised that the study was being conducted to achieve purely academic objectives. The study did not provide any incentives to those participating in the study, and participation was given on a purely voluntary basis.

The third task was to deal with privacy, and the researcher looked at the privacy of the participants at three levels, the first level being the setting in which the interview took place. There was an oral agreement made between participants and the researcher on an interview setting where the participant would feel most comfortable. The location of the interview was arranged based on the

preferences of the participant, so interviews took place in their offices and other pre-arranged areas where they felt their privacy was maintained. The agreement helped the researcher avoid any invasion of the participants' privacy. The second level was the sensitivity of the information collected; the information provided was not sensitive in the view of participants, since it did not deal with their personal or private lives. The third level was the nature of the information collected; the researcher informed participants that the information collected would not be made available to the public. Each participant interviewed was not made aware of what the researcher had discussed with other participants, and the information obtained remained strictly between researcher and participants. This was meant to ensure that privacy and anonymity were assured.

Furthermore, the names of the participants are not cited in the analysis featured in chapters five, six, seven, and eight; instead, the researcher allocated each participant a specific code in order to protect their anonymity.

Studies by McNiff and Whitehead (2009, p.27; 2005, p.67) mention that ethics should be based on the principles of morality. A study by Hammersley (1995, p.89) indicates that it is necessary for a researcher to protect participants in order to ensure processes are kept transparent. This protocol was followed by the researcher.

The researcher made sure that his role as a researcher did not give the wrong impression to participants and suggest he was acting both as a researcher and a government officer. The researcher made sure that his role was explained to participants who took part in the study for ethical clarification and to avoid role conflicts. For example, the researcher informed participants that his role in the study was purely to collect information based on their experiences, and not for any other specific purpose. Bruns and Meinzen-Dick (2000, p.54) state that when a qualitative research study is designed, it should have a predetermined process in place for collecting data from humans in a specified setting; the process should aim to understand their ideas and experiences in more detail. The researcher also paid attention to his relationship with participants, and ensured that the relationship remained purely one of data collection and did not involve any other personal activities. The process of ensuring ethics in studies on policy will be identified during the research design; this will include

discussion of the methodological framework adopted and information on the sources of funding. This was clearly indicated to participants. In the next section, a self-reflective critique is laid out.

3.9 REFLECTIVE SELF-CRITIQUE

The results of the research study were, in one way or another, influenced by the fact that the researcher was an outsider rather than an insider. As an outsider, it was difficult for the researcher to gain easy access to knowledge on the topic investigated as most of the participants considered the researcher someone with no links to the area of study. This was considered true because the researcher came from outside the area, despite his knowledge of the country. However, this was addressed when the researcher informed participants that although he was an outsider, he had strong links with the country (having done work experience there) and a commitment to carrying out the study in the area. Participants also believed that the results of the research would not necessarily contribute to the country's strategic development of water systems in the near future, since it was stressed that the research only seeks to achieve academic objectives. The researcher informed participants that although the study is for academic purposes, the results will be disseminated in international journals and the final study report will be given to the government so it has a full picture of the water situation. This is important as it might provide some new opportunities in the near future for the area studied. In this context, the area might see new projects implemented as a result of the investigation. However, the issue of the outsider as a researcher has been extensively highlighted by Gray (2005, p.56), who indicated that, in qualitative studies, if the researcher does not belong to the area being studied, the population in that area may have doubts about the motivations behind the investigation and its potential outcomes. Gray states that, in such a situation, the population might ask themselves who will benefit from such studies. In contrast, a study by West (1996, p.67) indicates that even though there is doubt among the population over the study being carried out, there is always a belief that the research study might contribute to or strengthen an area where intervention is needed. The next section highlights some key constraints of this study.

3.10 FIELD CONSTRAINTS AND OTHER LIMITATIONS

The researcher must state that, during data collection in the Zambezi basin in Zambia, he encountered a number of constraints which might have affected the quality of the study results. These constraints are discussed below.

Longitudinal effects: The selected topic of policy and institutions required an extensive amount of research because of the time it took to select a suitable research methodology with which to analyse water policy and issues with institutions in rural areas. Also, measuring changes meant the stability of the sample was constrained. Since the literature review required careful selection and understanding of key themes in order to identify gaps in existing research, it was also of limited scope. The processes of data gathering, analysis and interpretation were also constrained by the time schedule.

The self-reporting of data: Self-reported data is limited because it can rarely be verified because the researcher has to take what participants have said at face value. Self-reported data contains several potential elements of bias; for instance, participants might incorrectly remember experiences or other past events that occurred in the water sector at the policy and institutional levels as having happened at a certain time.

Measures used to collect the data: After completing the interpretation of findings, the researcher discovered that the process of data collection had constrained his ability to conduct a thorough analysis of the study outcomes. For instance, the researcher regrets for not asking the private sector and NGOs for their views in the water sector in order to understand further the effectiveness of water policy and institutions in the Zambezi rural basin. However, the inclusion of the private sector and NGOs could have provided additional insights into wider perceptions of water policy and institutions. Furthermore, the inclusion of the private sector and NGOs could have also provided further insights into the issue of water supply and its effect.

Language: The researcher has knowledge of the local language Nyandia but used an interpreter who assisted with data collection to clarify in cases where the researcher could not translate something correctly. The interpreter helped

the researcher understand different themes which emerged during the data collection process. The researcher had learned the language when working for the Common Market for Eastern and Southern Africa (COMESA), which is an intergovernmental organisation comprised of 20 member states situated in both central and southern Africa as well as in the north of Africa. The interviews with officials from the NWASCO, members of the Village Water Committee and households were conducted in English. Interviews with three of the ten households were conducted in the local language, and the interpreter played a key role in interpreting and translating these interviews. A study by Fine *et al.* (2003, p.34) indicates that, in qualitative research, the viability of the study outcomes and their interpretation should be derived from the language that constitutes the basis of the research. This concern was seriously taken into account. Stringer (2007, p.25) indicated that all studies are, to some degree, constrained by unforeseen field factors which might limit their strength. The next section provides a brief summary of the chapter.

3.11 CHAPTER SUMMARY

This chapter has extensively discussed why the researcher chose to select the grounded theory methodology as the most suitable research methodology with which to conduct this study. The continuously changing nature of institutions and policies within the water sector poses a great challenge to understanding this particular phenomenon in the context of a specific setting. The views of policy makers, the Village Water Committee and households in the community helped to capture the views central to understanding the social realities of the water sector. A grounded theory was developed to provide a suitable explanation for the studied phenomenon: institutions and policy impacts on the water sector in the Zambezi rural basin in Zambia. The theory is therefore categorised as being substantive rather than formal, because the data collection and interpretation have focused on explaining a specific area.

This chapter has also explained the use of the case study approach within the grounded theory, and the use of data collection methods such as semi-structured interviews, on participatory observation and reviews of various documents. This has led to an understanding of the empirical realities which

derive from the processes of institutions and policy, and has contributed towards answering the study research question. The next chapter will discuss the process of data analysis based on the grounded theory methodology.

CHAPTER 4: DATA ANALYSIS

This chapter discusses how the data was analysed using the grounded theory methodology approach. The objectives of the analysis were to understand the attitudes and views the insights of the participants interviewed. This was an attempt to gain knowledge of water policy and the institutions responsible for developing the conceptual framework, as illustrated in chapter 2**.** This chapter is divided into two sections: the first section discusses the coding and the constant comparative method, and the second section will explore how the memos were written.

4.1 OVERVIEW

Data analysis is an essential test of the effectiveness of the data collection process. Neuman (1997, p.66) states that the collection of data and its analysis have to be entwined and continued from the start of the investigation through to the end of the study. The analysis of the data gives the researcher opportunities to carry out the data collection and analysis simultaneously, making it possible to refine and adapt the research questions of the study (Charmaz 2006). This process helps to create a better summary of the key themes and patterns that emerged during the data collection (David, 2005, p.14). Primary data gained through data collection provides the researcher with a guide for finding new data which is rich in detail.

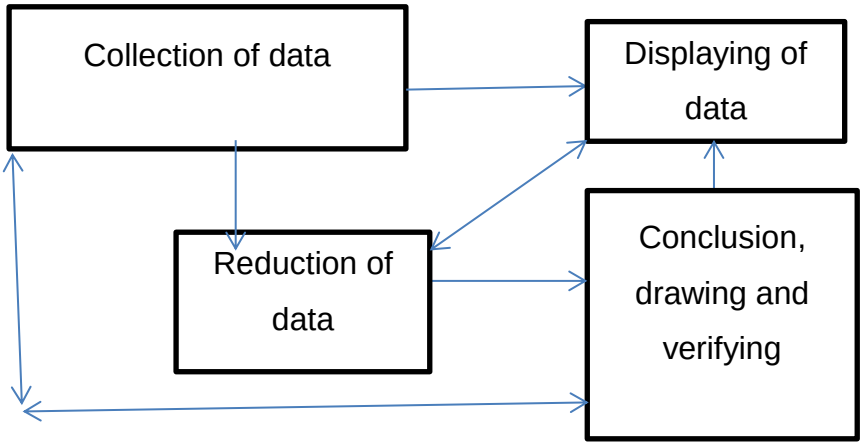
With data collected using the qualitative approach, it has been argued that there is no perfect and consistent method that the researcher can use to analyse the raw data. However, there are various logical techniques that are used to make sense of the data collected through qualitative research in order to provide answers to diverse research questions across different social contexts (Ritchie and Lewis, 2003). Roger and Victor (1996, p.20) specify that the techniques in qualitative analysis are diverse, interconnected, and complementary, and have limitations.

Regarding the use of qualitative data analysis in this study, human behaviour will be analysed using the analysis of the content of their experiences through the use of interview notes will principally reflect human interpretations of the

particular subjects or themes that arose from the research, exploring the symbols and layers of meaning attached to them (Patton, 2003, p.23).Charmaz (2006) specifies that the main idea behind the data analysis, according to the grounded theory methodology, is simply to gain knowledge which can be understood by people in a particular society so that they can take action in order to improve the management systems governing their social activities. The process of understanding experiences of participants is often affected by how frequently observations and interviews were carried out in the community, as these activities decide the next actions that will be taken by the researcher (Strauss and Corbin, 1998, p.32).

Esterberg (2002, p.54) said that analysis of data entails three of the most key forms of research activity which are displaying data, reducing data, and verifying data in order to reach conclusions(see figure 3 below). The conclusions reached help the researcher to understand the data in more detail and decide upon the likely outcomes of the research in line with the research questions and objectives.

Figure 3: Model of interactive data analysis



Source: Miles and Huberman 1984, p.76; 1994, p.35.

The framework of the data analysis is based on the Miles and Huberman model (1984, p.20; 1994, p.56) which involves diverse stages leading up to the data analysis. The first stage is the collection of data which includes the processes of data selection, data simplification, and data abstraction. In adopting this model,

the researcher first of all selected all the data which was potentially relevant to the main themes that emerged from the semi-structured field interviews. After this, the researcher grouped the data into specific themes such as water policy, institutional roles, and the effects of policy and the process of implementation. This process helped the researcher to focus on the data obtained and begin to understand the trends evident across the various themes. This led the researcher to start focusing on the analysis of useful materials which had the potential to help answer the research question.

Chapters 6, 7, and 8 present the data and its analysis in accordance with the research objectives and question and in chapter 9 presents study conclusion. From this perspective, data analysis makes it possible to form conclusions.

To analyse the data, computer aids were used to help analyse the interview transcripts. This was done to examine policy and its institutional effects, considering how these affect people in the context of the water sector. It was meant to gain insights into how people make sense of their experiences of policy reform and institutions. The data is broken down to ensure it is effectively managed and to develop categories based on the themes already identified A study by Somekh and Levin (2011, p.44) indicates that the main idea is to try and extract quotes which correspond to the study themes. Keeping this in mind has allowed the researcher to come up with new ideas and words which grew out of the respondents' views and opinions. An NVivo software package was used to cross reference with the identified set of themes; this was meant to identify perceptions and focus on the phenomena meaningful to individuals as part of the overall research study analysis framework. Coding was carried out to organise, give meaning to and interpret the data.

4.2 **CODING**

As discussed in chapter 3 on methodology, coding is an essential process which permits the development of a grounded theory. Charmaz (2006, p.47) explains that coding is an indispensable process that creates opportunities to link the collection of data with the development of theory; theory emerges in order to give meaning to the data. However, when using coding, the researcher can explain exactly what happens in the data and come to understand what

information yielded by data analysis means for the study (Strauss and Corbin, 1998, p.12). The process of coding occurs in stages when using the grounded theory as part of the methodology (Patton, 1990; 2003, p.10;). In the initial stage, the researcher aims to inductively generate as many ideas as possible from the early data. In the focused coding stage, the researcher has to focus on pursuing a select set of central codes in order to the key themes emerging from the data analysis process. This helped the researcher to make specific decisions to determine which initial codes were the most prevalent or necessary and contributed to the analysis of the data. In the theoretical coding stage, the researcher's aim is to refine the final categories of coding in relation to the theory.

Charmaz also specifies that the researcher should use codes which are as similar to the data as possible, and carry out the coding process quickly in order to facilitate this. After interviews were conducted, the researcher had a large amount of data and this helped him to understand many of the codes which had emerged. This included a set of codes that mainly captured how policy makers view water supply problems and new policies that need to be implemented. In this context, the process of policy implementation will be central to the research and aided by the use of focused codes. By developing better comparisons between codes and between data sets, the researcher established the category of seeking out policy to understand water problems from the focused codes such as gathering and comparing the interviews with policy makers in order to reach suitable conclusions (Symon and Cassel, 1998, p.25). This has permitted the researcher to understand the relationship between them. When the researcher used a comparative approach, it permitted him to produce a theoretical code which makes sense of the evidence and knowledge gained through the research. This code has captured the social processes of policy makers in the water sector when they face water problems, and suggests how to deal with these problems in a more sustainable way (Strauss and Corbin, 1998, p.36). The theoretical code will help to focus on the construction of knowledge. Table 6 below covers the process of coding used in this research based on the grounded theory methodology.

Table 6: Coding process

Raw data	**Initial coding**	**Focused coding**	**Theoretical coding**
Question – How did policy improve the water sector at the household level? If yes, how can we measure it? Does water infrastructure exist in the water sector? If water infrastructure doesn't exist (what are the implications for the rural households?)	Analysing existing policy for the water sector, and determining how policy has helped support the water sector. Comparing experiences on water policy.	Seeking evidence of policy in the water sector Gathering accounts of the experiences of policy makers, members of the village water committee and households, and comparing their evidence in order to reach a conclusion.	Making sense of the evidence and supporting the construction of knowledge on policy.
Question – How do you see water institutions in the next five years? Do you think that they are seriously involved in the water sector? Decide which institution is the most influential in the water sector, and consider why, at the rural level, there are still institutional problems in terms of a lack of institutional autonomy	Analysing participants' experiences relating to institutions' futures, and examining how strong institutions operate in the water sector.	Same as above.	Making sense of evidence and supporting the construction of knowledge on institutions and their effects

Source: Data analysis.

In relation to the above table, the researcher first of all looked at the first set of interview transcripts which were coded using the NVivo software. This did not prove very beneficial, because some of the initial concepts were not confirmed. In order to deal with the issues arising from the concepts, initial ideas were engaged; for example, the researcher adopted another strategy in which interview codes were divided manually rather than with the use of software. The researcher analysed the data by working line-by-line through each transcript, writing down themes and identifying phenomena in the margins. The codes were not therefore microscopically split, but what was interesting was that some key abstract categories emerged. Some of the codes identified closely reflected interviewees' accounts, while others were abstract or conceptual in nature. Memos were written throughout the coding exercise in order to allow the researcher to identify specific ideas and thoughts in line with the data analysis.

The coding process made it possible to develop codes based on the themes and issues that emerged in relation to people's experiences of institutions and policy. A coding system was developed to ensure that all the emergent themes were assigned a specific code for effective analysis of using the grounded theory methodology. When the interviews were transcribed, the participant' names were replaced with code numbers. Participants in the study were assigned codes (see appendix 6) which were then grouped into categories: policy makers, members of the Village Water Committee, and members of households. Institution A is the National Water Supply and Sanitation Council, which policy makers belong to; institution B is the Village Water Committee These two codes are only used to distinguish between the perceptions of the participants interviewed. A sample obtained from an interview with the Senior Chairman of the Village Water Committee is illustrated below.

*Question one***: What are the challenges of water management within the framework of water policy reform that have been observed**

Guiding note to question one

Question one is intended to get respondents' perceptions on the historical background to water policy development, highlight key challenges, and obtain

information on the likely issues which might, in one way or another, impact on the institutional water delivery systems at the local level.

Chairman Interview

> The Water Act dates back to 1949 and is therefore out-dated; of particular concern is that the Act was silent on rural water strategies. It does not cover the management of ground water resources or provide for community village water committee to be involved in the management of resources. The Water Supply and Sanitation (WSS) Act was silent on the supply of services to rural areas and water utilities have only been established to service urban areas.
> The enforcement was inadequate and there was a lack of capacity exacerbated by a brain drain which meant that educated experts were searching for other jobs outside the country […] The sector remained very weak in terms of capacity building [...] But it was also emphasised that there was very limited technological application in relation to water sector supply and demand; ineffective community participation in the management of the water sector and other related activities […] The information systems were not integrated into the planning and management of policy implementation because of lack of suitable technical staff to manage it. Data was scattered all over, and there were no proper systems for data compilation. Another dimension which the policy did not strengthen is gender, which has remained very weak, but the adoption by the government of a gender policy was an important milestone for addressing this issue [...] The framework of an integrated approach to the water sector was not embraced, because of the complexity to adopt the universal agreed […] the Integrated Water Resources Management (IWRM) and consequently affected the operationalisation and implementation of policy.
> On the side of water policy reform, the state introduced a national Water Policy Act in 1994, but strategies to implement it during that period were lacking. This meant the state urgently needed to develop institutional arrangements within the water sector so that the policy act could be implemented. However, even though institutions were established there was not a clear vision of what the institutions were to do in the water sector, and only one responsibility of regulating the water sector was clarified within the Water Policy Act[…] This led to institutions conflicting with each other over roles and responsibilities, and therefore provided an overlapping framework. The state has also recognised water as an economic and social good and acknowledged its importance in relation to socio-economic development and environmental protection.
> Water policy was implemented in two important phases, and each phase was carried out to face a particular issue in the sector. Phase one was mainly restricted to determining the water supply and sanitation sectors; this led to the formulation of a national Water Policy in 1994. Phase two focused on implementation and how to develop and implement a complete water sector programme through the Ministry of Energy and Water Development. But there were concerns over why the act was delayed in terms of implementation in order to address the deterioration

> of sanitation and water supply infrastructure and other issues [...] therefore, concerns were raised that led to a review of the main causes of delay in the application of the Water Policy Act through a commissioned study, which aimed to determine water sector performance in order to address the issues of human rights, weak enforcement, and the mechanisms of the water sector. Unless proper enforcement and monitoring mechanisms are put in place, the issue of water allocation will not be efficiently overcome.

Question two: **What are the likely effects emanating from institutions and the policy framework for the supply of water to rural communities in the Zambezi rural basin?**

Guiding note to question two

This question is intended to capture some insights on policy and institutions in relation to the supply of water services.

Chairman Interview

> Poor households have suffered since the water policy act was formulated; however, water regulation in its current form has presented obstacles to the provision of water to the poor, because regulations have a tendency to ignore the fact that poor households have specific water conditions to cope with. Regulations are formulated but do not take into account the needs of the people, and only consider the interests of the state by raising the tariff charges for water at the community level. Water coverage is not well developed and targeted, although the regulator has managed to enforce some aspects of the water policy regulatory framework, for example, aspects of issuing of water permits to private sector providers, but the regulator is not yet in a position to effectively manage water policy for the community. Regulatory quality standards have not yet been fully implemented, and this has impacted the poor as it has raised tariffs for poor areas and put pressure on households to pay high prices for water. However, one key challenge is to balance quality standards with local needs while making sure that there is a trade-off between services and prices. In this area, the regulator NWASCO is not able to secure long-term quality requirements for the provision of water.

Question three: **What are the major ideas for improving the water sector in the context of the Zambezi rural basin?**

> **Guiding notes to question three**
>
> This question is intended to capture the key areas necessary for water improvement**.**
>
> **Chairman Interview**

> The current ambition for the water sector in the Zambezi rural basin is to see water improvements through the establishment of new water facilities and the strengthening of institutions; there is one problem, which is that institutions are not well designed to meet the demands of the rural population. It is important to ensure that the water sector is kept in line with the purposes for which God gives us this natural resource; it has been given freely since the creation of the world, why now are rural people in the position where they do not have enough water to drink or use for domestic activities [...] I also expressed the view that, with the advent of the economic challenges now observed throughout the world, the future of the water sector in developing countries, particularly for those people living in rural areas, is not bright […] but as someone involved in the water sector, and stimulated by the desire to see the water sector improve, I will invest my energy into ensuring that the sector is organised and that institutions function well for the betterment of the people of the Zambezi rural basin (Member A, Institution B).

4.3 SELF –CRITIQUE OF THE INTERVIEW SAMPLE AND ITS RELIABILITY

Based on the analysis of this interview sample, the participant provided comprehensive accounts of his experiences in terms of the water sector; this is because of his position as Chairman of the village water committee. He understood the issues with the water sector in the rural context, and water issued remained key to water sector development. The water of policy and institutions has been addressed in the analysis featured in chapters 6, 7, and 8. But if the researcher had enough time, the participant could have provided lengthy interview accounts and, therefore, raised some issues which other participants could not have addressed and clarified in relation to the context. The participant was free to express himself and very confident of what he was talking about, and proved to be a reliable source of information because his position in the organisation made him confident in his views; therefore, the experience obtained is from a highly reliable source in terms of the source's understanding of the main issues constraining the water sector. His accounts provide information which could also be applied to other, similar situations, and be used to understand issues related to the water sector. However, despite the usefulness of the Chairman's account, he was not really willing to provide other information and was very careful in terms of the information he chose to give. This raises the issue of bias in the sense that while his participation was

voluntary, he was not obliged to give full and detailed answers to all the interview questions.

4.4 MEMO WRITING

Throughout the study, the researcher focused on writing a memo after each interview while in the field; the memo reflected exactly what was learned from the interaction between the researcher and the participant. The memo contained the researcher's impressions about the participant's experiences, and the researcher's reaction was also captured to reflect his thoughts about some of the pre-existing ideas in relation to what was learned from the interview. Table 7 below illustrates one sample memo.

Table 7: Memo written after interviewing a policy maker from the NWASCO

The interview with the policy maker seems very significant because it was an eye-opening interview in the sense that the policy maker provided good insights on the water supply situation in the area, and specifically on the area of policy. When providing his personal work experiences, the bottom line was that the implementation of policy faced a number of challenges such as a lack of funding and capacity building, and consequently refocusing policy to deliver water to rural areas became a matter of less significance to policy makers. If the policy was formulated to support communities throughout the country, it has not yet been fully applied. I am so glad that we had an interview on this subject, and I don't know if someone will be able to effectively promote the rural water sector, and whether or not that might happen in the near future. How could institutions support the poor to access water? This could only be done if the state provides the necessary means and ensures that the poor participate in the implementation of policy or take charge of water services themselves, otherwise I am not sure if the policy objective of providing water access to all by 2015 will be met. Is there any mechanism that the country has put in place to deal with water policy challenges? Yes. For example, there are efforts to establish water watches [water watchers are the voluntary organisations with objectives to support the institutional regulatory framework in solving water complaints] in all

provinces.

The researcher has learned that effective water policy requires the state's intervention, and that an institution alone will not be able to effectively implement water policy. Challenges at the policy and institutional levels have to be dealt with if the water sector is to improve. The participant has highlighted his experiences based on what the institution has been involved with and how policy is implemented at the national level. Interestingly, when the researcher interviewed another policy maker, he heard the view that the nature of the policy currently being applied does not necessarily mean that the water sector is neglected, and that there are some specific efforts being made in this regard. However, the researcher felt that this issue has to be explored in the next interview with a third policy maker to highlight some more specific areas of study.

Source: Data analysis.

4.5 USE OF SOFTWARE FOR DATA MANAGEMENT AND ANALYSIS

Patton (1990, p.29) advocates the view that using software in any research study is important, because it can help to write up and strengthen the editing, coding and retrieval of information; software can also help to display data, carry out content analyses and facilitate graphical mapping and representation. It also helps with data linking. However, he noted that some researchers fear that using software will not necessarily help them analyse information, instead taking the view that the intervention of the researcher is more critical. Patton also emphasised that while software can support the process of data analysis, the researcher has to be responsible for the intellectual efforts needed to conduct research and analyse data. A word processor, Microsoft Word, and a piece of qualitative analysis software, NVivo, were mainly used to support the process of data analysis and also helped to manage the interview data. The use of a computer has helped to efficiently reduce the time spent on data planning, organisation, and analysis of findings. It has also supported the processes of sorting and re-sorting materials and refining codes. Qualitative analysis software allowed the researcher to reflect on the data and connect ideas that emerged between data sets.

4.5.1 TRANSCRIBING INTERVIEWS AND IMPORTING INTO NVIVO

The use of NVivo for the data analysis has allowed the researcher to organise, re-arrange and manage a sizable amount of data. After the researcher had coded the interviews into NVivo, all the relevant passages were assigned specific codes and these could be seen on screen and printed. The search for specific text strings could be carried out across all possible interviews and take into account all the relevant paragraphs. All the interview transcripts were constructed in a specific way in Microsoft Word in order to facilitate the importing of the transcripts into NVivo. For example, all of the interview questions were given a specific 'Heading1' format. When the researcher imported transcripts into NVivo, the software showed other connected questions in the panel of the NViovo explorer. For instance, when the researcher wishes to select a question the software made it possible to jump directly to the relevant interview transcript. The summaries of the interviews were directly placed in the first two paragraphs of every transcript. This permitted the researcher to import interview transcripts directly into NVivo.

4.6 **VALIDITY**

The term 'validity' is explained by a broad variety of concepts in qualitative research (Hammersley and Atkinson, 1987, p.55). According to Reinharz (1992, p.45), the concept varies depending on the meaning attached to it. This concept is not recognised as a single universal concept, rather it is a known as a contingent construct which is grounded in the processes and targets of the methodology of a particular study (May, 2011, p.97). Even though researchers using the qualitative approach have emphasised that the concept of validity cannot be applied to qualitative enquiries, they have conceded that it can be applied in a research study when the researchers want to put in place some kind of qualifying check or measure for their study (Charmaz 2006). For example, Esterberg (2002, p.23) indicated that the term 'validity' was, in most cases, affected by the nature of the researcher's perception of it in relation to the study they were undertaking; in some situations, it was influenced by the researcher's choice of a particular study discourse supposition. As a consequence of this, researchers, in order to evaluate the validity of their

research's findings, have managed to develop their own understandings of the term 'validity' and generate their own definitions of it (Esterberg 2002, p.29). For any research to succeed, the researcher has to be conscious of validity in order to test the outcomes of the data analysis process (Flick, 2009, p.66). According to the traditional view of qualitative enquiry, the origins of the criteria for understanding validity can be found in the positivist epistemological approach. Within the positivist tradition, the concept of validity has been defined in a systematic way in order to talk about empirical concepts such as universal law, truth, actuality, deduction, reason, fact, numerical data, and reality (Goodley *et al*., 2004, p.24; Gray 2005). In this study, validity is situated and analysed in the context of the naturalistic research methodology in order to comprehend the phenomenon (Gilbert, 2001, p.21); for instance, it is the Zambezi rural basin that is the context, not the water policy institutions that operate in it. According to West (1996, p.26), the concept of validity in qualitative research does not permit researchers to manipulate phenomena in order to meet their research interests. In this case, validity is meant to ensure results are achieved based on the field experience using data collected in the form of interviews in order to capture participants' opinions and judgements (Plummer, 2001, p.53). In another argument, Charmaz (2006) explains that the results obtained from qualitative enquiry are derived from experiences of the real world rather than experiences of an imaginary world; therefore, it provides a basis for understanding phenomena according to particular research interests. The qualitative data analysis outcomes or findings are presented in a different kind of data presentation format because they are the products of a detailed interview process conducted in a natural setting (Stringer, 2007, p.26). A study by McNiff and Whitehead (2009, p.11) indicates that the interviews and field observations are more prominent and dominant in the natural (interpretive) research paradigm. This is because these methods of data collection offer the possibility of coming into contact with respondents in order to understand their organised behaviours in the study's setting (Denzin and Lincoln 2008, p.35).

A study by May (2011, p.22) indicates that qualitative analysis results in a different type of knowledge than quantitative inquiry, because qualitative studies can yield detailed interview responses in a natural environment. Douglas (1985.p.12) argued that studies using qualitative research need to be modified

in order to develop research questions and adapt the interview questions to the research question. Based on Douglas's arguments, the researcher modified and adapted the interview questions during the field study in order to ensure that participants or respondents were given enough opportunities to express their views, ensuring the validity of their arguments and the reliability of the study outcomes.

In this study, ensuring the validity of the data collected from the Zambezi rural basin institutions and households was achieved through the researcher's first staying in the region for five months in the field; this allowed the researcher to work with participant's day in and day out for a specified and prolonged period of time. This is vital for naturalistic study (McNiff and Whitehead, 2005, p.47). During this period, the researcher gained the trust of participants and found gatekeepers who helped him to gain access to participants and sites of relevance to the study investigation. The researcher established a rapport with participants which permitted them to feel more comfortable when disclosing information; this allowed the researcher to obtain credible accounts and build a tight and holistic case. As the researcher spent five months in the field, the evidence he found was strengthened because he was able to check out data, follow up on instincts or ideas and compare interview data with observational data. This process allowed the researcher to both hear from participants and understand the context the participants' views. The researcher also established a collaborative approach with participants throughout the investigation. This means that the researcher gave participants opportunities to be part of the study through less formal arrangements; for instance, the researcher involved participants by getting them to support the process of data collection. In addition, the researcher asked participants to remind other participants about interview appointments. The researcher also gave participants a chance to check their accounts after the interview so that they could agree that the account reflected their views. This allowed the researcher to build participants' views into the study's final findings, ensuring that the data collected was reflective of participants' experiences. In this context, the outcome derived from the analysis reflects that the thesis findings could be generalised and applied to a larger population or contextual environment in another country where policy

and institutions are the main drivers of the water sector. The outcomes of the research have added credibility to the general study findings.

4.7 CHAPTER SUMMARY

The chapter has extensively explained the analysis of data through the use of the grounded theory methodology to develop a particular theory and construct knowledge. The coding process has been explained in terms of the data analysis. The use of the model adopted by Miles and Huberman for qualitative studies indicates the steps involved in the analysis of data, which includes, for instance, displaying data in order to ensure that quotes are selected and building tables according to the study's identified themes. The display of data has made it possible to understand the collection of data and how to analyse it. Chapter 5 discusses the background of institutions and water policy in the context of Zambia, which will create a better understanding of the issues to be examined in subsequent chapters 6, 7, and 8.

CHAPTER 5: POLICY AND INSTITUTIONS: BACKGROUND IN THE ZAMBEZI CONTEXT

5.1 INTRODUCTION

Following the previous chapter on methodology and the methods used in this study for data collection and analysis, this chapter highlights how this research has revealed details of the context being considered through analysis of the findings. This chapter will present a general perspective on water policy and institutions, as well as the challenges facing, and the efficiency of, water institutions; it will also consider the background of the Zambian water sector. This will help to understand how water policy and institutions have evolved and what the main constraints to their effectiveness are. This chapter will provide comprehensive background information which will support the analysis of the data.

The chapter is organised around two sections: section one will discuss the general background of Zambia, and the situation of the water sector; the second section will discuss the genesis of water policy and the challenges faced in the implementation of the reform process, and it will further provide a brief summary.

5.2 COUNTRY PROFILE

Zambia is a landlocked country in the southern African sphere and covers an area of 752,610 km^2. It is geographically situated south of the equator with longitudes ranging between 22° to 34° east of the Greenwich Meridian, and latitudes ranging from 8°15’ to 18°7’ west (Kampala *et al.*, 2002, p.18). In terms of climate, the country is situated in the subtropical region which means that it enjoys two types of season – dry and rainy (NWASCO 2010.p.16).

Kampala *et al.* (2002, p.26) claim that variations in and limited rainfall have enhanced the importance of water to people’s lives at both the national and local levels. The lack of rain has had an impact on the water supply, therefore affecting the accessibility of water to people in general. For instance, a study by Nyambe *et al.* (2002, p.12) showed that, during the period between 2002 and

2003, disturbance in the rainfall patterns led to a severe drought which affected the agricultural and fishery sectors. The most affected parts of the country were the southern, western, and north western regions (Chinje and Johnson, 1997, p.29)**.** The estimated crop failure during this period was 70 per cent, and the government tried to deal with the situation only by providing food aid rather than determining the root causes of the effects of the drought in the region and finding a solution to prevent it from happening again and implementing appropriate policy intervention mechanisms (NWASCO, 2007a; 2010, p.26).

5.2.1 THE ADMINISTRATIVE STRUCTURE IN RESPECT TO POPULATION COVERAGE PER PROVINCE

Administratively, Zambia is subdivided into ten provinces namely copper belt, Lusaka, northern, southern, eastern, western, north-western, and central and Luapula and Muchinga. The provinces are further subdivided into headquarters, towns and districts (Chileshe *et al*., 2005, p.5). A district has a local council which is in charge of decisions at the local government level. At the provincial level, there are several ethnic groups which speak different languages and have their own beliefs and values (The Republic of Zambia, 2006, p.11). Table 8 below summarises statistical information on the population spread in Zambia in both rural and urban areas per province from 1990 to 2015 as projected by the Central Statistics Office (CSO).

Table 8: Population distribution per province in Zambia for the period from 1990 to 2015 with projection estimate.

province(s) district(s)	Capital	Area (sq.km.)	population 1990-08-20 census	population 2000-10-25 census	population 2010-10-15 census
Central Province	Kabwe	94,394	771,818	1,012,257	1,267,803
Chibombo		13,423	158,382	241,612	293,765
Kabwe		1,572	169,026	176,758	202,914
Kapiri Mposhi		17,219	110,762	194,752	240,841
Mkushi		17,726	76,747	107,438	151,803
Mumbwa		21,103	148,927	158,861	218,328
Serenje		23,351	107,974	132,836	160,152

province(s) district(s)	Capital	Area (sq.km.)	population 1990-08-20 census	population 2000-10-25 census	population 2010-10-15 census
Copperbelt Province	Ndola	31,328	1,458,459	1,581,221	1,958,623
Chililabombwe		1,026	65,218	67,533	90,530
Chingola		1,676	168,999	172,026	210,073
Kalulushi		725	69,597	75,806	96,206
Kitwe		777	347,024	376,124	522,092
Luanshya		811	144,815	147,908	153,117
Lufwanyama		9,849	51,745	63,185	75,542
Masaiti		5,383	84,831	95,581	102,503
Mpongwe		8,339	38,718	64,371	91,765
Mufulira		1,637	152,735	143,930	161,601
Ndola		1,103	334,777	374,757	455,194
Eastern Province	Chipata	69,106	1,004,693	1,306,173	1,707,731
Chadiza		2,574	66,681	83,981	104,255
Chama		17,630	55,172	74,890	101,412
Chipata		6,693	261,100	367,539	452,428
Katete		3,989	143,952	189,250	240,818
Lundazi		14,058	179,414	236,833	314,281
Mambwe		5,294	60,016	70,425	71,074
Nyimba		10,509	38,300	47,376	85,684
Petauke		8,359	200,058	235,879	337,779
Luapula Province	Mansa	50,567	564,493	775,353	958,976
Chiengi		3,965	47,290	83,824	109,147
Kawambwa		9,303	85,307	102,503	130,680
Mansa		9,901	132,500	179,749	217,603
Milenge		6,261	20,045	28,790	43,649
Mwense		6,718	86,326	105,759	117,990
Nchelenge		4,090	72,761	111,119	147,927
Samfya		10,329	120,264	163,609	191,980
Lusaka Province	Lusaka	21,896	991,226	1,391,329	2,198,996
Chongwe		8,669	95,738	137,461	187,969
Kafue		9,396	117,354	150,217	242,754
Luangwa		3,471	17,070	18,948	25,294
Lusaka		360	761,064	1,084,703	1,742,979
Northern Province	Kasama	147,826	925,865	1,258,696	1,759,600
Chilubi		4,648	44,350	66,338	76,911
Chinsali		15,395	89,779	128,646	147,845
Isoka		9,225	82,563	99,319	164,410
Kaputa		13,004	53,403	87,233	113,485
Kasama		10,788	125,492	170,929	238,035
Luwingu		8,892	72,164	80,758	134,426
Mbala		8,339	110,980	149,634	213,254
Mpika		40,935	123,099	146,196	211,425
Mporokoso		12,043	54,888	73,929	100,933
Mpulungu		10,170	44,533	67,602	96,322
Mungwi		9,766	74,735	112,977	144,537
Nakonde		4,621	49,879	75,135	118,017
North-Western	Solwezi	125,826	438,216	583,350	706,462

province(s) district(s)	Capital	Area (sq.km.)	population 1990-08-20 census	population 2000-10-25 census	population 2010-10-15 census
Province					
Chavuma		4,280	27,944	29,941	33,893
Kabompo		14,532	60,164	51,904	91,160
Kasempa		20,821	42,261	44,002	65,730
Mufumbwe		20,756	25,151	71,238	55,099
Mwinilunga		21,116	93,941	117,505	132,688
Solwezi		30,261	137,728	203,797	239,051
Zambezi		14,060	51,027	64,963	88,841
Southern Province	Livingstone	85,283	965,591	1,212,124	1,606,793
Choma		7,296	170,687	204,898	244,180
Gwembe		3,879	39,785	34,133	52,711
Itezhi-tezhi		16,064	31,424	43,111	64,593
Kalomo		15,000	127,762	169,503	254,211
Kazungula		16,835	45,157	68,265	98,292
Livingstone		695	83,780	103,288	142,034
Mazabuka		6,242	162,321	203,219	261,268
Monze		4,854	133,671	163,578	195,921
Namwala		5,687	61,848	82,810	101,589
Siavonga		3,871	37,497	58,864	89,787
Sinazongwe		4,860	71,659	80,455	102,207
Western Province	Mongu	126,386	638,756	765,088	881,524
Kalabo		17,526	103,878	114,806	132,968
Kaoma		23,315	116,616	162,568	179,326
Lukulu		16,292	54,053	68,375	83,902
Mongu		10,075	150,129	162,002	178,454
Senanga		15,537	98,804	109,119	126,974
Sesheke		29,272	68,424	78,169	94,612
Shang'ombo		14,369	46,852	70,049	85,288
Total		752,612	7,759,117	9,885,591	13,046,508

Source: Compiled data from the Central Statistics Office database (CSO, 2010), Zambia

Table 8 above shows that a higher proportion of the population is situated in rural areas as compared to urban areas. This is observed across all provinces and, therefore, this will requires an increase in water demand for the projected population. For instance, in the Zambezi rural basin, population is projected to increase from the current level of 14,060 to 88,841 by 2015. With the increase in population, there will be pressure on water as a resource in terms of water supply. It is important for new ways of thinking in order to improve policy and institutions to adapt to the population increase.

5.2.2 THE STATUS OF WATER RESOURCES

Generally speaking, Zambia has abundant water resources. The total water coverage is 11,890 km^2 of the country's water surface area. Its total water potential is estimated at 237 million m^3 per day (The Republic of Zambia, 2003, p.29). This report indicates that Zambia has the capacity to meet the total national water demand with good management and a strong institutional framework in the water supply and sanitation sector. The report by the NWASCO (2008, p.12) further indicates that, in terms of the presence of rivers, there are four main rivers in Zambia: Zambezi, Kafue, Luapula and Luangwa. Among these rivers, Kafue River is situated at the Zambian frontier. The presence of these rivers in the country is a very encouraging sign as, with the implementation of the right policies, environment can be used more effectively for water resource management (Chitonge, 2010). Besides the four main rivers, there are also smaller rivers called the Chambeshi and the Kabompo which also have water in abundance (Chitonge, 2007).

A report by the Republic of Zambia (2004, p.26) indicates that, in terms of length, the Zambezi River, situated along the southern frontier of the country, is the country's largest river. The report also highlights that the Zambezi River also run through Angola, Zimbabwe and Mozambique. Similarly, the Luapula River is located laterally to the north western border of Zambia and shares its water with the Democratic Republic of Congo. The Luangwa River situated in the north-eastern side of Zambia and also shares its water with Mozambique. At the international level, Zambian water is linked to water course basins which include the Zambezi River basin, the Tanganyika basin and the Congo River basin (NWASCO, 2007b, p.61). However, in terms of ground water resources, no estimate has yet been made. The ground water is estimated at 57.5x109 m^3 per year (Republic of Zambia, 2005, p.24). The report also indicates that the presence of ground water is more important for Zambia as most of the population depends on it for daily activities (Simataa, 2005). It further highlights that natural distribution is dependent on seasonal variations and the location being considered (ibid). According to the Central Statistical Office (*CSO 2010),* despite the abundant water resources, the water sector still has problems with water supply and demand at the local level in terms of water accessibility and

population coverage; this is demonstrated in table 9below. This is confirmed in a study by Smith (2003).

Table 9: Status of population water coverage [9] per province from 1991 to 2006

Provinces	Rural population	% population with water coverage	Urban population	% of population with water coverage
Central	5,326,648	29%	4,578,201	34%
Northern	678,110	12%	187,367	43%
North-western	867,456	22%	356,321	55%
Southern	733,692	22.6%	354,546	46%
Western	735,602	6.3%	98,197	46%

Source: Compiled data from the Central Statistics Office database (CSO, 2010, p.45).

Table 9 above shows the water coverage per province between rural and urban areas. The size of the population slightly affects the percentage of water coverage between the two areas. It is actually urban areas which have a higher percentage of water sector coverage. The data indicates that in rural areas of central province, the population is estimated at 5,3326,648, of which only 29 per cent has water coverage, while in urban areas where the population is estimated at 4,578,201 of which 34 per cent has water coverage. In the Northern Province, people accessing water services are estimated at 678,110 of which 12 per cent of the rural population has water coverage (CSO, 2010). The urban population in the Northern Province is estimated at 187,367 which represent 43 per cent of the total population has water coverage The data also reveals that, in the north-western province, the rural population is assessed to be 867,456 of which 22 per cent has water coverage while the urban

[9] The researcher uses water coverage to refer to the proportion of the population with access to water. In this context, water coverage is expressed in terms of a percentage to indicate the size of the population with access to water for their livelihoods.

population is estimated at 356,321 indicates 55 per cent has water coverage However, in the southern province the total rural population is estimated at 733,692 of which 22.6 per cent has water coverage, while in urban areas the total population is estimated at 354,546 of which 46 per cent has water coverage It is also noted that, in the Western province, the rural population is 735,602 of which 6.3 per cent has water coverage while the total population of the urban areas is estimated at 98,197 of which 46 per cent has water coverage (Chinje and Johnson, 1997). The trends in water coverage show that the urban population has more coverage compared to the rural population. This is evidenced in a study by Craig (2000) and in an African Development Fund (2006) report which indicates that rural water coverage is still a major concern in developing countries because of the ineffective water strategies used to strengthen water coverage. Hall and Lobina (2006, p.28) indicate that only the urban water sector has attracted investment in the last decade, and that this has supported the development of major infrastructures in the water sector. Furthermore, a study by Dagdeviren (2008, p.36) demonstrates that rural areas in different developing countries have low water coverage despite their population densities.

5.3 GENESIS OF WATER POLICY AND INSTITUTIONAL REFORMS

This section discusses the major developments observed in the reform process and institutional change.

The water sector in Zambia has undergone significant policy reforms since its introduction in the early 1990s, as noted by Chola (2003, p.66). A study by Cocg (2000, p.36) explains that water policy was developed to highlight the absence of a strategic framework capable of protecting the water sector and managing the uncertainties that arise because of water problems, uncertainties observed in previous decades. Nyambe *et al.* (2002, p.12) argue that, even though reforms in the sector have been on-going ever since they were adopted as policy for water sector growth, there have been major shifts in how the water sector is organised and managed. Fundaga and Mwaba (1996, p.19) explain that the Zambian water sector has undergone various periods of transition, as discussed below.

5.3.1 WATER POLICY DEVELOPMENT

5.3.1.1 INSTITUTIONS PRIOR TO 1994

Institutional reform in the management of water sector prior to 1994 was poorly coordinated, which led to a duplication of effort in relation to roles and responsibilities; it also created tension between the different government departments with regards to roles and jurisdictions (Nyambe *et al* 2002; Smith 2008). The management of water and sanitation services was part of the responsibility of local government authorities such as local councils in both urban and rural areas (Ohlsson and Lundgvist , 2002). Although local councils were managing water and sanitation services, they became insolvent by the mid- 1980s in terms of funding for water and sanitation services (Pinay ,1988).

Insolvency contributed to the inability of local councils to meet the water and sanitation service requirements of the population. It rendered local councils incapable of meeting the demand for water from communities in both urban and rural areas. Therefore, councils were not in a position to meet the demand for water generated by the growing population. Other factors contributing to the constraints of water supply were the deterioration of water infrastructure in both urban and rural areas (Nyambe *et al*., 2002).

According to the NWASCO reports (2007b; 2010), decline in the water and sanitation infrastructure and the deterioration of the quality of water and sanitation services prompted the Zambian government to launch water policy reforms in the early 1990s.

During the mid- 1980s, various government departments such as the Ministries of water and energy, agriculture and fisheries, local housing, and health were part of the process of water management, assuming responsibilities connected to their respective domains. These were considered, in one way or other institutions involved in driving the water sector forward based on sectorial objectives (Priscoli *et al.,* 2004). However, the institutions in charge of water had no links to the informal water sector; therefore, the norms, beliefs and rules associated with the informal water sector were not related to formal institutional rules. The non- interaction of values between formal institutions and informal

institutions led to inefficient water and sanitation services. Peter (2006) said that the failure of formal and informal institutions to interact in terms of policy impacted on how the water sector was managed by local councils; ministries or government departments could synergise to share responsibilities, and could share resources in the management of the water sector in urban and rural areas. Cleaver *et al* (2013) indicated that the lack of a hybrid institutional framework constrained the process of establishing effective institutional arrangements in order to influence the welfare of citizens in relation to the provision of water.

5.3.1.2 WATER POLICY: THE PERIOD 1994 TO 2013.

In studies by NWASCO (2000, p.27; 2007, p.24; the Republic of Zambia, 1998, p.20, 2003, p.45, 2005, p.25), it is highlighted that the Zambia water policy reform process has witnessed major developments and this has determined the extent of water service delivery. A study by Simutanyi (1996, p.53) states that, over the past 16 years, the sector has witnessed major developments in the areas of policy reform and institutional implementation in relation to water sector services. He also said that major shifts have been observed in policy and legal reform, institutional reform, and the management of envisaged reform. A study by Nyambe *et al.* (2002, p.23) underlined that policy and the legal framework are dedicated to developing a coherent national water framework aimed at guiding the water sector. However, the policy framework also aimed to develop an all-inclusive water sector which included the management of water resources (Chola, 2003, p.12). The reforms were implemented in three phases, as shown in table10 below. This table provides useful information which helps to understand the different stages of policy development and implementation.

Table 10: Phases of water sector reform in Zambia

Main reforms	Period	Key outcomes	Status
Policy development	1994-1998	National Water Policy National Water and Sanitation Act	Completed
Establishing a new institutional framework	1998–2000	Separation of Water and Sanitation Services (WSS) from Water Resources Management (WRM) Establishment of National Water Supply Regulator (NWASCO)	Completed
Rehabilitation and expansion of infrastructure	2000–present	Establishment of Devolution Trust Fund (DTF), Department of Infrastructure and Support Services (DISS) takes over infrastructural development	On-going

Source: NWASCO, 2009, p.66.

It is important to note that, according to the table 10 above, the development of water policy reform has been achieved throughout the reform and implementation processes in the context of the policy framework. Based on the reform process for water policy, study by Chitonge (2007) emphasises that, despite the reform process, ensuring the success of reform and implementation remains challenging for developing countries like Zambia because of the legal and administrative changes that occur during the implementation phase. A study by Franceys (2000, p.25) indicates that even if water policy reform is steadily completed, the policy framework cannot be developed practically because of issues such as strengthening stakeholder participation, defining the role of institutions in rural communities in order to implement policy for the rural water sector, and addressing the inadequacy of legal and institutional frameworks when it comes to rural water challenges.

Studies by Jackson and Morrison (2007, p.19) and Kerr (2002, p.20) explain that, in developing countries, determining what the role of local institutions in the water sector will be and how they can become more effective at the rural community level has not been tackled until now. This has posed significant obstacles to the growth of the water sector in rural areas of developing countries (UNDP, 2007). For instance, a study by Molle (2005, p.16) indicates that there are some areas where action is needed to empower locally established institutions so they can effectively play their roles and function as vehicles to stimulate the growth of the water sector and implement policy reforms. He further states that institutional roles have to be clearly set out at both the macro and micro levels so each institution understands its responsibilities and boundaries of operationalisation (ibid). However, the main question is how is the country's current framework reflected in terms of rural institutions? This will be discussed in the next section.

5.3.2 INSTITUTIONAL FRAMEWORK

A study by Nyambe *et al.* (2002) examines the adequacy of existing water institutions in the water sector, illustrated in table 11 below, and stipulates that while there are various institutional actors in the water sector, they all play different roles that are linked to their mandates. Institutional arrangements and

roles vary with respect to the responsibilities institutions have for the functionality of the water sector in terms of policy implementation (Craig, 2000). For instance, some institutions are much more interested in supporting people to access water, managing the cost of water for various uses and the cost of water service provision and other related issues (Crase and O'Keefe, 2008; 2009). This is evidenced in study by Savenije *(*1997, p.29) which indicate that the delivery of water entirely depends on the power of the country and whether it decides to free the water sector to serve the interests of the general population or use it to serve the interests of particular groups. However, study by Kampala *et al.* (2002, p.19) emphasises that the Zambian state plays a prominent and dominant role in water sector policy systems because of the political influence over the water sector. Kampala *et al.* also specify that other institutions besides the state are also involved such as the Ministry of Water and Energy Development (MWED), the Ministry of Agriculture, Food and Fisheries (MAFF), the Ministry of Environmental (MOEV), Natural Resources and Tourism (MENRT), the Ministry of Land (ML), the Ministry of Health (MH), the Ministry of Works and Supply (MWS), the Ministry of Education (MOE) and the Ministry of Finance and National Development (MFND). This myriad of institutions continues to play a critical role in water sector policy processes because of the influence they have in the political spectrum. These institutions enjoy a great degree of privilege as they can influence water sector policy formulation. Among these ministries, the MAFF is recognised as the ministry partner in the management of water allocation because irrigation accounts for five per cent of the total water demand (Republic of Zambia, 2004, p.24).

A study by Kauffmann and Perard (2007) highlights that the Ministry of Local Government and Housing (MLGH) has sole responsibility for managing water supply, particularly when it comes to drinking water and sanitation. In the Republic of Zambia's report (2004, p.25), it is highlighted that the MWED, the MLGH and the MH are all recognised as important ministries which form the inner circle responsible for water policy development. A study by Robinson (2002) argues that, despite the various roles and responsibilities assumed by ministries, there is no single guide that sets out which ministry is in charge of developing effective policies for the water sector. Robinson also reveals that, at the research level, the government of Zambia relies on research carried out by

universities in the Southern African Development Community (SADC) region or the University of Zambia. A study by Thompson (1993, p.33; 2001) highlights that the failure of water policy research in developing countries is the result of the current lack of understanding of water issues in the areas of institutional responsibility and water demand strategy. Another study by Moriarty *et al.* (2004, p.17) also emphasises that when research is carried out, it is normally constrained by limited financial resources, and this consequently limits the ability of institutions to support water sector development.

Table 11: Institutional framework – water management roles and responsibilities

Government ministries	Water management responsibilities
Office of the President	Taking charge to review water policy.
Ministry of Water and Energy Development	This ministry plays its role in water resource management and water administration in terms of water rights, and, to some degree, it also takes part in the financial management of water supply and sanitation.
Ministry of Local Government and Housing	This ministry plays its role in financial management and administration.
Ministry of Health	This ministry is to some degree responsible for formulating water legislation and supervising its implementation.

Source: The Republic of Zambia (2004, p.67).

Table 11 shows the complexity of the arrangements in the institutional framework in the context of Zambian water sector management. It also explains the specific areas of management and the responsibilities of various government ministries and departments with respect to policy formulation, design, planning, coordination and decision-making processes, as well as financing mechanisms. The top executives, such as the President of the Republic of Zambia, play a prominent role in the decision-making process; for instance, they are influential in matters relating to strategic planning and regional and international cooperation. However, separate ministries and departments also play an important role in controlling lower level strategic planning and decision-making (NWASCO, 2007b; 2010, p.29). The role played by government departments has indeed curtailed the role which could have been played by other key players, such as water users, water associations, community based organisations and other groups interested in the water sector (Republic of Zambia, 2004, p.23).

The capacity of water policy is further narrowed by limiting it to a group of government ministries, including the Office of the President and the National Assembly (Ministry of Agriculture and Cooperative (MACO, 2002, p.19) This highlights the fact that water policy decisions are taken at the top government executive level, and will entirely depend on how they are perceived in relation to their likely implications for other, non-water related *sectors (*Dagdeviren, *2008*, p.45). Also, while water policy is recognised at the top executive level, it has never been rejected by the National Parliament despite its lack of focus for the rural water supply (Chinje and Johnson, 1997, p.12). In this context, the role of legislature is limited in terms of authority in the water sector because of its inability to raise of issues of water tariffs for the rural areas (Chandiwana and Snellen, 1994, p.13). This is evidenced in a study by Sokile *et al.* (2002, p.37) which illustrates that states in developing countries have a very high degree of power which permits them to determine the course of actions taken in the water sector. A study by Sampath and Young (1990, p.39) indicates that although the state has a high degree of power, if water policy is well clarified and the state is willing to develop positive water sector reforms and serve rural people, water sector goals can be achieved.

Another study by Swatuk (2002, p.65; 2005) demonstrates that, within the water policy framework, those players who are not part of the planning system (for instance, water users in some specific circumstances) can still influence the outcomes of a water policy by taking a supporting or active role; alternatively, they might in some situations ignore or oppose water policy interventions at the implementation stage. A study by Muyoyeta (2004, p.18) shows that the influence of rural institutions or agencies is always limited in terms of participation and the discussion of institutional arrangements at the early stage of policy formulation; their involvement needs to be expanded so they can play a significant role in institutional delivery systems.

5.4 CHALLENGES IN THE WATER SECTOR

A study by Bakker *et al.* (1999, p.29) reveals that there are still severe challenges facing the water sector and policy implementation. Among the critical issues are water infrastructure development, boosting water affordability

for the poor, allocating water appropriately to meet competing needs and improving the quality and quantity of water in the rural areas of developing countries such as Zambia (Chitonge, 2007; 2010). Other challenges include the failure of water institutions to improve access to water supply and sanitation in order to promote better hygiene for the well-being of rural people (Chilenshe *et al.*, 2005). This is demonstrated in a study by Watson (2009, p.19) which highlights how, in many developing countries, even though people have access to water, they may not be accessing good quality and reliable water services. A study by Muyoyeta (2004, p.29) indicates that, in developing countries including Zambia, institutional regulatory mechanisms are often weak because there are various issues which have not yet been addressed; for example, the issue of the regulatory framework which in most cases has never been refined in order to adapt to the modern environment. Reports by the NWASCO (2007, p.12; 2003; 2010) and the Republic of Zambia (1998, p.15; 1999, p.29) recognise that there is no proper clarification of responsibility at the institutional level to ensure that the process of reinforcing mechanisms is combined with the development of a sound legal and regulatory framework focused on speeding up the process of water policy implementation at all levels of society. In contrast, a study by Kampala *et al.* (2002, p.26) specifies that there is an absence within water policy of robust regulatory mechanisms for rural communities to reinforce local institutional regulatory mechanisms which could enable them to contribute effectively to the development of the rural water sector. Another study by Chola (2003, p.25) emphasises that, at the policy level, there are two central issues which have been identified: the perpetual problem of water shortages and the inadequacy of infrastructure for investment which has, in turn, affected institutions' capacity to develop suitable water coverage for communities. A study by Sampath and Young (1990.p.19) indicate that reforms in the water sector have been carried out with a degree of disparity between services and locations, and this has created differences in institutional implementation between rural and urban areas. In light of the reform process and the challenges faced in the water sector, the necessity to create viable institutions becomes more apparent (Ministry of Energy and Water Development (MEWD, 1994, p.10).

5.5 CHAPTER SUMMARY

The chapter has discussed water policy and the institutional setup in the water sector within the context of Zambia. It has provided a background to the country. It has also discussed how institutions in the water sector were created as a result of the policy reform process, and explored the challenges encountered during the policy implementation process. It has demonstrated that water policy was created as a result of water shortages identified in the past. This prompted the creation of a number of institutions aimed at managing the water sector in terms of regulation to sustain water supplies for citizens. The reform of the water sector has become the cornerstone of the institutional model adopted in Zambia to improve the water sector. However, there are still challenges which need to be addressed, such as the ineffectiveness of policy and the flawed institutional mechanisms in place to deliver water to poor people. In the next chapter, the findings of the study will be presented in order to analyse the empirical evidence obtained in the field. The findings will be explored in chapters 6, 7, and 8.

CHAPTER 6: INSTITUTIONS IN THE WATER SECTOR

6.1 INTRODUCTION

This chapter aims to examine the current forms of the existing institutions in the water sector as well as their practices in the context of the Zambezi basin in Zambia. As discussed in chapter 5, institutions in the water sector have only begun to emerge in Zambia over the last 13 years. However, a review of the background of these institutions gives strength to the process of analysing the data derived from the empirical case study, and provides a framework that attempts to answer the research questions set out in chapter 2. The analysis of the empirical data in this chapter takes into account the research question, and is in line with the conceptual framework developed in chapter2 (which specifically focuses on institutions, water policy, and implementation impacts).

This chapter consists of two main sections. Initially, a brief introduction will be provided on the institutions covered. The following first section will then focus on the National Water Supply and Sanitation Council (NWASCO) as a key institution, highlighting its performance in the context of its guidelines, and the successes and failures of the water sector. The second section will focus on another key institution: the Village Water Committee in the Zambezi rural basin.

6.2 WHAT ARE THE KEY INSTITUTIONS IN THIS SECTOR?

This section provides a brief overview on key institutions, and discusses each institution in the water sector separately, in order to determine their performance on specific issues within the research interests.

Institutions

According to the literature on institutional arrangement, water delivery has become an important measure of the success or failure of projects in the water sector in many developing countries. Over the last 60 years, a number of institutions have been established globally as remedies that can develop the capacity of the water sector; this has led to the creation of strong government

agencies that can deliver water sector services to developing countries. For instance, the institutions in South Africa, Botswana, and Lesotho have been instrumental in reforming and implementing water policy and delivery (Douglas 1987; Meinzen-Dick, 2007, p.20). In other countries (for instance, in Zimbabwe, Mozambique, Malawi, and Zambia), however, institutions have been unable to effectively reform the water sector, due to the government's policies towards that sector. In this context, it has been argued that the role of these institutions is to shape the water sector in terms of organisation, implementation and delivery (Cernea, 1987, p.10; Morris 1997)). In this regard, the theoretical literature in chapter 2 on institutional theory has explained the possible benefits of institutional change (either generally or specifically), as it is necessary, in the case of the water sector, to address specific issues concerning its development. There are two critical issues in the development of the water sector. The first concerns the water supply facilities and its provision, and the second, the implementation of water policy reforms. As part of the administrative system, each institution has a great impact on the community, influencing the overall water environment through its relationship with the population and other agencies in the water sector (Bruns *et al.,* 2005, p.22). However, it is emphasised that the success of such institutions, which will reflect the delivery of water services in a particular environment, depends on an effective reform process (Bruns and Meinzen, 2005, p.26). In this context, two institutions will be examined as follows.

6.2.1 THE NATIONAL WATER SUPPLY AND SANITATION COUNCIL (NWASCO)

Among the institutions in the water sector, as explained in chapter 4, the NWASCO is one of the main institutions created to regulate the sector and improve its performance in water service delivery. This institution is governed via the administrative structure indicated in appendix 2. According to Chitonge (2010), organisational structure is designed to develop an administrative framework that permits institutions to function in a coherent way in order to achieve intended objectives. Within the water sector, these institutional

objectives consist of meeting people's demand for water as well as ensuring that the water sector is strengthened in accordance with the realities of water policy (Anand, 2010, p.143). In this context, the organisational structure of the NWASCO is composed of a hierarchy of responsibilities. According to the theory of organisational structure (Handy, 1987, p.35) "an organisational structure is an administrative system designed to set up an effective administrative hierarchical structure at the institutional level." It supports organisational capability and capacity and is an operational framework based on the institution's assigned objectives and goals in pursuit of specific outcomes (Bruns and Meinzen-Dick , 2000, p.25). In this regard, the structure of the NWASCO is functional because it reflects each individual's specific responsibilities (NWASCO, 2008, p.29). The NWASCO report also underlines that, in this structure, functions such as human resources and accounting are kept separate from each other and this allows them to function independently. Furthermore, Bruns (2004) indicates that this type of structure provides a high level of specialisation; employees become experts in their respective responsibilities and the organisation benefits over time from the employees' experience. Kauffmann and Perard (2007) emphasise that although such structures offer certain specific benefits, they may pose a challenge regarding the coordination and cooperation between departments as each department or unit works for its own best interests. The argument is that this line of management follows a top down approach to effectively implement policy (Bruns and Meinzen-Dick, 2003). With this kind of organisation, it will be challenging for the organisation to develop an effective system of communication between employees and executives, unless policy makers are willing to review the entire programme of the organisation and adapt various positions according to the current demands of water policy implementation and institutional strengthening (Bruns and Meinzen-Dick, 2000). In a top down administration, the institutional structure has a tremendous influence on the execution of its activities, and consequently, affects the manner in which decisions are made in the water sector. It was noted that, in such an arrangement, participants indicated:

> Since the administrative structure was put in place, communication between employees and management has become very difficult to improve.
>
> This is because the flow of information between and across departments implementing water policy reforms is not well strengthened (Policy maker C; Institution A).

This demonstrates that the staff are often not aware of those policies and rules yet to be applied to reform the water sector, making it difficult for the staff to follow and apply the agreed water sector regulations. For instance, participants indicated:

> There was a time, institution (NWASCO) was receiving applications about the newly introduced licences, but we had received enough information regarding the new guidelines introduced. We processed applications based on the previous guidelines, and this created problems at a later stage when it came to the time of processing and issuing new licences (Policy maker B; Institution A).

With this analysis, therefore, the findings indicate that the administrative structure should be extremely proactive in strengthening the communication channels between employees and departments so that the appropriate policies are applied. The data indicates that these institutions have to be designed to take into account the effect of the administrative structure on institutions' functions. This is extremely important, as administrative structures have to permit institutions to carry out their functions effectively in order for them to attain their intended service delivery objectives. If the structure acts as a constraint, then it will obstruct the institution. In this context, the next section will examine how the NWASCO was formed, and identify the source of its legitimacy.

6.2.1.1 HOW IS THE NWASCO CONSTRUCTED? WHAT IS THE SOURCE OF THIS INSTITUTION'S LEGITIMACY?

The NWASCO was created due to the law that governs water supply and sanitation in Zambia, the Water Act No. 28 1997. The act principally focuses on

how to strengthen the regulation of the water sector in terms of its service, as well as authorising service providers to take decisions on issues that relate to water provision. This act authorised the creation of NWSCO as an independent autonomous institution. It was constructed as a result of the general neglect of the water sector and its decline in terms of service and delivery. There was a discussion, therefore, that led to the state taking a unilateral decision to establish institutions that could regulate the water sector. This was principally manifested in the NWASCO (and does not relate to the village water committee). Participants indicated that locally established institutions were influenced by external factors which included the necessity of changing legal regimes to open a window of opportunity for the creation of such institutions. However, external factors have also included when the water policy was framed and implemented, the policy's level of focused on the standardisation of the water sector, and the changing nature of successive government policies (which change the key areas of focus regarding water delivery, as the state only concentrates on those areas which can help it attain its objectives). However, this demonstrates that such institutions in the water sector have been operating through a bureaucratic management approach, which is termed as such because of the style of the institutional management embedded in it. Participants also indicated that the creation of institutions was meant to improve rules and put in place practices that would regulate access in the water sector. It was noted, however, that water regulation seemed dynamic due to the changing nature of policy delivery and implementation. Why is this constantly changing? This is because the institution has to adapt its operations with regard to the regulation of the water sector under different political regimes, without neglecting any area under its jurisdiction. However, the key constraint to its effective operation is that it must operate within the power of the state: the state has the authority to dissolve the institution at any time it deemed necessary, and defines its functions, responsibilities as well as controls the regulatory system. The state has the power to appoint the governing board of the institution as well as to oversee its operations. The state plays both the role of main stakeholder and principal regulator. As a regulator, the state has the power to review water tariffs as well as the institution's operational plan. Most institutions in the water sector are classified as national institutions and are

subject to the Water Act and other water related legislation. This confirms the findings of a study by Basson (2010, p.26) which states that examining water institutions is significant because of their constantly changing nature as well as their changing institutional direction with regard to service delivery policy. Other participants also explained that the changing nature of these institutions is based on the decision-making process for the implementation of policies in the water sector; effective decision-making has been identified as one of the key factors which can allow institutions in the water sector to implement reform. However, because decision-making is fragmented within the institution's hierarchical structure, the state is unwilling to give greater power and legitimacy to these institutions. The absence of an effective enforcement mechanism, such as legal and institutional structures that could achieve objectives in water development and transform rural communities, has constrained institutional legitimacy in the water sector. However, participants indicated that the immediate removal of this short-term institutional constraint will require much needed recognition from the state that these institutions are able to deliver water to the general populace. The legitimacy of these institutions has to; indeed, come from the people (with less involvement from the state) so that the policies being implemented are successfully adopted by the local population. In this context, participants also specified that, unless there is a coordinated effort at the legal and institutional levels to empower institutions, particularly those established at the rural level to regulate the identified key areas in the supply of water facilities, institutions will be unable to provide the necessary change needed to ensure that the technical implementation of water legislation is strengthened. In the current state of affairs, power is non-existent at the institutional level among already established village institutions. The analysis of the findings demonstrates that one of the main limitations on institutions in the water sector is the lack of legal legitimacy, which constrains the operations of the water sector. This is because citizens do not influence the institutions' decisions in the Zambezi rural basin. Participants indicated that:

..Citizens, and institutions have to manage the "water in a unified way as a common property... because in the current status of water institutions "management structures, there is a problem of who does what, and which institutions have to implement what (Members A, C, B; Institution B).

Therefore, there has to be well-defined legitimacy in the institutional framework, in accordance with the bureaucratic policies and procedures set up by the state, and the state has to ensure that any institution operating in the water sector is given sufficient power so that they are able to draw their legitimacy from the citizens they serve within a well-defined institutional framework. The state has to completely withdraw from interfering in the management of the water sector, and grant the needed legitimacy to locally established institutions. This view is supported by Crase and O'Keefe (2008, p.34) who indicated that institutional legitimacy remains the key factor that has constrained the delivery of water in developing countries, due to the lack of effective regulatory systems. In this context, the findings of this study indicate that, although the NWASCO was established by the Water Act, it lacks legitimacy; this has hampered the progress in the water sector in the Zambezi rural basin. The legitimacy, in this case, should be citizen oriented and not state-given, due to legal issues surrounding the implementation of policy in the water sector *(Powell* 2000 ;Schreiner and Van Koppen (2001). However, it is important to indicate that the only institution which possesses legal legitimacy is the NWASCO, which was established by the state to regulate the water sector. This context provides an opportunity to understand how the establishment of this institution will be evaluated in terms of its performance regarding the delivery of services and implementation of policy in the water sector. In this regard, the next section will examine how this institution has performed in order to determine how effective its outcomes are.

6.2.1.2 HOW CAN WE EVALUATE THE NWASCO AND ITS PERFORMANCE?

As discussed in chapter 2, the evaluation of institutions has to constitute an important area of the study and will help to understand how an institution has performed in the water sector. It will determine how an institution has previously performed or how it is performing presently. This is because the water sector has undergone a tremendous change in the last decade and still continues to undergo it in the present (De Lange, 2004). This makes it necessary to understand how it has previously performed, in order to learn from its experiences and to see how to address the identified challenges. In the water

sector, the past performance of institutions was related to how investment was attracted while, in the present, institutions are principally evaluated on improved water management practices embedded within the institutional framework.

- In this context, as mentioned in the report by the Central Statistical Office (CSO, 2010, p.24), the NWASCO is specified as a regulatory water institution that has developed and still implements the eight basic principles governing the operation of the water sector. These are outlined below:

- Advise the government on the water supply and sanitation sector.
- Contribute to national development projects and programmes in order to implement water activities.
- Develop guidelines and formulate policies.
- Provide advice to water utility firms and other service providers on how to handle water complaints obtained from water users.
- Contribute to the dissemination of information to water users.
- Advise Local Authorities on the commercialisation of institutional arrangements in the water sector.
- Establish and enforce standards and regulations in the water supply and sanitation sectors.
- Issue licences for the water supply and sanitation sectors.

These eights principles are reflected in a report by the NWASCO (2010) and indicate a significant milestone in the formulation and development of the implementation process in the water policy framework. A study by the Republic of Zambia (2003, p.35; 2005, p.45) emphasises that these eight principles, implemented through the institutional management framework, form the basic blueprint aimed at governing the water sector. These guidelines have permitted NWASCO to establish a certain degree of rules and regulation in the water sector. It has helped the institution to be in a position of control regarding the allocation of permits to private sector organisations and to other commercial utilities in the water sector. Studies by Banerjee *et al*. (2008) point out that although this institution carries out the function of providing advice on matters related to water supply and sanitation, the Zambian government remains the

main custodian of water supply and sanitation service provision. This limits the institution in terms of delivery within the water sector, and keeps the sector from being attended to effectively. The interference by the state, to some degree, weakens this institution; although it was created to regulate the water sector, in reality it is not this institution which regulates the water sector but the state. Participants also indicated that it is the state that makes informed decisions for the water supply and sanitation sector by giving specific orders and a certain policy direction to follow. However, participants also expressed concern about the inability of the institution to create an environment that is conducive to strengthening the framework of the water sector and felt that this is of critical importance in the evaluation of water institutions. Institutions have to adopt better approaches to water management in order to create the necessary conditions for water users and other agencies to be involved in the process; these approaches could include citizen participation in the planning and monitoring of the water policy reform and the improvement of the supply of water through effective implementation of effective policies. Currently, the absence of the creation of conditions for water users' and other agencies' participation is a major limitation constraining the implementation of water sector activities, particularly the reform agenda. Other participants also indicated that it is important for those in authority to help institutions create a legal framework that defines the specific activities allowed for specific areas of institutional interest, the institutions responsible for particular activities, and who is in charge of delivering which policy in order to manage the water sector. The main area of concern about the current institutional arrangement is that the existing legal framework has to be revised or updated in order to achieve a sustainable water system that can meet the needs of citizens. The current NWASCO in place is not sustainable, as expressed by participants, as its execution of policy has not, so far, been seen as sustainable in the water sector. The current institutional structure does not, in real terms, guarantee the implementation of policies that are sustainable. There have been discontinued projects in the water sector as well as a neglect of where water policy should be implemented and sustained; these problems are of major concern to citizens. Further, in terms of policy outcomes, the current institutional structure has

prevented policy on water supply from being effectively implemented in rural communities in the Zambezi rural basin.

In this regard, participants indicated that the institution has to take a proactive approach in ensuring that the advice obtained from the government is well implemented in accordance with the specified standards and principles governing the water sector. The eight guidelines mentioned above are the key elements of the institutional outcomes and institutions are affected by the way the guidelines are implemented overall in the water sector. However, participants also indicated that the state has the power to revoke some of the decisions taken by the NWASCO and has the ability to revise these guidelines if and when necessary; that is, if it feels that the application of certain guidelines and principles does not comply with the overall water policy. The state will then issue new directives on how the institution is expected to operate with regard to the implementation of guidelines. In this context, the institution is limited to operating as required, and remains dependent upon state decisions. A study by the Republic of Zambia (2004, p.19) discusses that, with regard to Principle II, the institution has a mandate to ensure that projects and programmes implemented in the Water Supply and Sanitation sector are well designed to contribute to national development; however, in certain situations, this has not happened as envisaged because of state interference. This is evidenced in the report by the NWASCO, which specifies that although the institution is in charge of the national development of activities for the water sector, it is limited in terms of financing for the relevant projects and programmes; this is because the state controls the necessary funding for these institutions and their activities. Participants emphasised that the institution has to become more financially independent; the state must seek to free it from its control, and allow it to develop programmes and projects aimed at securing funding from both internal and external sources. This will make it more operational and less dependent on state funding. This dependence as affected its performance in certain circumstances, as some projects and programmes have not yet been implemented. For instance, participants indicated that, in 2008, there was a programme that aimed to install water hand pumps and repair other water supply facilities in the Zambezi basin, but no programme has yet been implemented. Furthermore, respondents in the Zambezi basin said that they

even suggested allowing the institution to source its funds locally, but a response has yet to be received from the authorities. This has meant that programmes have not been implemented in rural areas and, consequently, the regulatory framework has remained unattended. In line with Principle III, respondents indicated that it is mandated that the water institution develop guidelines and policies for the development of water supply and sanitation; however, even though such a principle exists, one of the likely challenges is that the state interferes with the processes of policy formulation and guideline design (which is at the core of water policy design and application). This jeopardises the institution's independence which allows it to carry out its functions effectively. Estache and Rossi (2002, p.22) argue that the problems of state intervention, institutional independence, and their degree of involvement in water sector policy formulation and implementation need to be resolved in developing countries. They also specified that, for instance, in South Africa and Mozambique, the state is slowly beginning to withdraw its interventions in the water sector, with the specific aim of making the application of policy acts more effective. This is in line with the views expressed by participants who stated that the institutional implementation of the guidelines is based on the ability of an institution to implement water policy regulations and develop a capacity for the provision of services at the societal level but, in the case of the Zambezi basin, this has not happened as the institution has not yet completed the rural guidelines and hence the water sector has remained governed by the general guidelines since its inception. These guidelines have not even been updated to reflect the current changes to water policy and incorporate institutional change at national and global levels. In this regard, although certain issues still need to be addressed with regard to developing and updating new guidelines, the NWASCO has achieved remarkable progress in developing guidelines and principles at the management level. The reports commissioned by the Republic of Zambia (2003; 2004) highlight that these guidelines were developed as part of NWASCO's role and were aimed at ensuring that management of the water sector is efficiently sustained. The NWASCO (2007) report shows that these guidelines have guided the water sector effectively, although certain challenges, such as the implementation of these guidelines in the context of rural areas for

water provision sustainability, still need to be addressed. These guidelines are illustrated in table 12 below.

Table 12: Guidelines

- A minimum service level is required in water supply and sanitation.
- It is necessary to develop an effective monitoring system to improve the quality of water service.
- To make available to the population a minimum water service.
- Fixing tariffs for the supply of water and sanitation services.
- Establishment of an institutional accountability reporting system on an annual basis.
- Compiling accounting data and providing financial information reports.
- Advancing an institutional governance system.
- Developing a sound planning mechanism for investment in WSS.
- Ensuring that the mechanisms established strengthen financial projections.
- Developing a Human Resources handbook.

Source: NWASCO, 2007, p.56.

Analysis of these guidelines indicates that they adequately cover some key elements of water sector policy; for instance, when asked about these guidelines, respondents specified that the guideline to ensure that a minimum service level is established in water supply and sanitation has been attained. However, since its emphasis is on a minimum level of water supply, the guideline does not provide a strong foundation in the delivery of water supply and sanitation. This is because water supply and sanitation have to be provided at a full capacity in order to meet the increasing demands of citizens. A minimum level service does not necessarily guarantee that citizens will be able to access water at all times. This current situation emphasises that guideline 1 has to be revised and formulated in a different manner in order to adequately shape the delivery of water supply and sanitation. Guideline 2 recognises the need to improve monitoring systems, but this has not yet happened as the existing monitoring systems are not yet up to the challenges presented by water supply and sanitation. Guideline 3 indicates the need for institutions to make at least a minimum water service available to citizens; however, this has not been fully implemented in rural areas and has only been implemented in urban areas.

Consequently, the rural water sector is ineffective at providing water supply and sanitation. Regarding guideline 4, there has been a general standardisation of tariffs for water supply and sanitation services, but its application in rural areas has not yet produced tangible outcomes, as the water price is still high and unaffordable for citizens unless they are from well-to-do households. Guideline 5 indicates that it is important to establish institutions which are accountable (in terms of monitoring systems) on an annual basis; however, this guideline does not provide an institutional environment that sustains accountability for the management of water. It is there only to show that the water sector has a strong emphasis on accountability regarding how it is managed; in reality, the issue of accountability is abandoned due to the state's water agenda.

In relation to guideline 6, which indicates that institutions have to compile data for accounts and set up a financial reporting mechanism, this has been achieved due to the institution's interest in financial reporting systems, particularly at the level of institutional strategy. However, does the financial status of the institution in the water sector reflect how it has implemented its policy, particularly the water policy reform process? Guideline 7 emphasises the advancement of an institutional governance system in the water sector. In this context, institutional governance is meant to examine how the current structure is limited and identify opportunities to implement changes in the water sector. Water governance at the institutional level, as specified in guideline 7, has not yet been achieved, due to the static nature of the institution responsible for promoting it. It is 'static' in relation to institutional changes, but the national institution still has far to go to improve its governance systems for the water sector. This has even affected guideline 8, which is specifically formulated to advance planning in order to create investment in the water supply and sanitation service. For instance, one respondent indicated that planning did not take into consideration how water needs will be met through policy reforms, consequently making planning activities vulnerable to external threats rather than improving how the processes that achieve institutional governance are attained. The last two guidelines (9 and 10) have been established in order to develop Human Resources Handbooks which reflect how institutions manage their resources, as well as their financial projections for their five to ten year strategic plans. An analysis of these guidelines demonstrate that they have not

been effectively applied, and the institution in charge must revisit them and focus on how to implement these guidelines in line with the rural reforms required to improve water supply and sanitation services. It is clear that although water and sanitation are bound together, these guidelines are not specific to what needs to be addressed in each of these sectors. It only provides a general statement on the services of the entire water sector. From this perspective, the management of the water sector should examine how the institution has implemented the guidelines, and how it has ensured that the delivery of water is attained. This is reflected in a study by Proag (2006)) which indicates that this area needs to be dealt with in order to ensure that the guidelines for water accessibility and improvement are developed in the interests of rural people. It may be too early to form substantive conclusions as to whether the key steps undertaken by the institution are enabling water operators to function effectively or not. They also stress that consultations are necessary to get practical feedback on what other changes may be needed alongside the guidelines.

One of the other topics that emerged from participants was the issue of sanitation in the water sector and particularly within the regulatory framework; sanitation in the water sector has to be regulated separately in order to permit the institution to develop a sector-based approach when implementing the regulatory framework. With the current regulatory implementation strategy, the institution is not able to effectively reform the water sector as the guidelines are applied with a broader perspective in mind. Participants also indicated that this is why it is necessary for the institution to shape the guidelines in accordance with specific sub-sectors. For instance, there should be separate guidelines for the water sector and for sanitation; this would allow service providers to concentrate on one sub-sector and improve it, rather than attempting to provide all the water service activities in the sector. The issue of sanitation could be addressed by the future government's intention to utilise existing information and on-going water and sanitation studies to revisit the formulation of guidelines for policy adaptability in the water sanitation sector. A study by the World Water Forum (2000, p.29) indicates the need to develop or reformulate new guidelines for the water sector which will provide an important step in understanding the best option for water and sanitation policy as well as allowing the institution in

charge to be more focused on service delivery so that its performance is improved, benefiting the water sector and the people. However, in the analysis of the findings, it was found that the institution has developed guidelines that are not strong enough in terms of implementation (for the entire water sector) due to the inability of the institution to revise or update the guidelines to suit the needs of a changing water environment. The state has the ultimate authority to revise these guidelines; this is problematic, as it is the institution which normally operates in the field when dealing with water sector activities. Compared to the state, the institution better understands the conditions 'on the ground', and it has to be given the necessary power to operate independently in the implementation of the water policy reform agenda. This is one of the key constraints in the operationalisation of the water sector in the context of the rural community of the Zambezi rural basin. Furthermore, an analysis of institutional performance in the water sector has allowed this study to determine, in the next section, this study will analyse how it is possible to distinguish between institutional successes and failures.

6.2.1.3 NWASCO: WHAT DISTINGUISHES THE SUCCESSES FROM THE FAILURES? HOW DO WE DETERMINE WHAT IS SUCCESS AND WHAT IS FAILURE AT THE INSTITUTIONAL LEVEL?

In the previous section, this study has examined how the institution has performed in order to understand how it has specifically contributed to the design and implementation of its guidelines**.** This section will discuss how successes can be distinguished from failures at the institutional level. How is it possible to determine if an institution has succeeded or failed in reforming water policy? As discussed in chapter 2, the water sector has undergone tremendous reforms aimed at strengthening its institutional framework to ensure that successes are obtained in terms of water supply and sanitation. In this context, it is important to state that, within the theoretical framework of institutions, the established institutions are present but their successes are complex because they have to meet a variety of objectives concerning comprehensiveness, efficiency, and citizen satisfaction. However, the question is, why do some institutions succeed while others fail? From this perspective, this study will seek

to provide answers to that question. In this case, the NWASCO will be examined in order to better understand its successes and failures. Within institutional theory, there are two broad kinds of theories linked to institutional performance, which have been distinguished as either being part of the ecological theory or as part of the endogenous theory. The endogenous theory helps to explain how institutional successes or failures relate to internal institutional characteristics, and how the institution carries out its processes. Internal institutional characteristics relate to issues of policy, rules, and how institutions are governed. Do these internal characteristics help these institutions to perform in the water sector or not? By contrast, ecological institutional theories specifically emphasise the characteristics of the institutional environment, such as the availability of institutional external resources and how the demand from diverse groups have been met. However, it is important to indicate that, within the analysis of institutional theory, this study has addressed some of the aspects of each theory in order to better understand how internal and external institutional processes affect the water sector**.** The key finding of these two institutional theories is that institutions tend to implement certain policies and neglect other key actions that are needed to translate policy into action. The findings of this study indicate that the institutions in question are influenced by external resources that influence the success or failure of policy. The failure of the NWASCO as evidenced in the failure of its policy is the result of its poorly designed policy measures which have been identified as ineffective and inefficient; this is due to the poor participation of citizens and the weakness of the operational eligibility criteria in its implementation. Participants indicated that institutional failure was decided (or based) on the model of institutional delivery, which focused on the delivery of water to rural areas. The success of the delivery of water at the institutional level did not depend on how the institution was able to push for specific reforms, but it did depend on how the state supported it. For instance, NWASCO success is evidenced in its strength to develop specific guidelines taking into account broader policy implementation. However, although the institution did develop guidelines, its main failure was that it did not assist the local rural communities to access water. Its failure was also manifested within two broader aspects: firstly, the institution failed to consider the role of households; and

secondly, it failed to carry out activities that could have allowed the water sector to improve in fact, it has worsened the performance of the water sector. This, however, is based on a critical judgment emanating from the analysis of data, and it is important to indicate that the identified failures could be transformed into opportunities for better water delivery and management. Also, the challenge faced by institutions in the water sector could help policy makers rework the framework of water policy in order to achieve better performance. From this perspective, a study by Dirkesen and Huppert (2006, p.18) highlights that identifying the challenges faced by institutions provide an avenue for policy change and institutional direction, but this is not always achieved when institutions are influenced by external pressures. If institutions are well managed, this will be demonstrated through their performance and judged in terms of their stability and the efficiency of their policy reform process in the provision of service delivery. The analysis of the findings of this study indicates, however, that the institution did not satisfactorily deliver in the implementation of policy: there were extremely poorly managed rules and regulations towards the water sector which, consequently, resulted in general inefficiency. However, the issue of ground water was difficult to control due to the lack of guidelines specifically designed to manage ground water. The institution's inability to broaden rules and regulations to improve the water sector, and the involvement of the state in the design and application of policy, constrained the success of the institution. The direct involvement of the state in the water sector did not pay off and it has led to a minimally successful water institution. The outputs, in terms of water supply and demand, did not meet the requirements of the water sector in the Zambezi rural basin. The next section focuses on policy and law integration at the institutional level.

6.2.1.4 HOW DID THE NWASCO PERMIT THE INTEGRATION OF POLICY AND LAWS WITHIN ITS INSTITUTIONAL FRAMEWORK?

Integration of policy is vital to the success or failure of institutions involved in water sector reforms. If policy and laws are integrated within a particular framework, they have the potential to allow their application to affect sector performance. For instance, we note that when policy and laws are integrated together (meaning that their interpretation and implementation are made more

effective), it broadens the institutional scope of the application of rules specific to the water sector. In this context, institutions such as the NWASCO have not yet provided a suitable integration system; the NWASCO applies policy separately to the law and, consequently, the two are implemented differently. This poses a problem around how institutions can support the process of water policy reform in order to achieve sustainable water supply and sanitation. It constrains how institutions will establish appropriate mechanisms for the advancement of the development of the water sector. However, participants emphasised that:

> These institutions have not yet established appropriate mechanisms which could lead to the integration of the policy and laws within the framework (Member F; Institution B) This is what is lacking. They also said that… The process of integration of legislation and policy is very weak in terms of cohesion (Members D, F; Institution B).

This demonstrates that there is no policy and law integration, because while there are policies that have covered how the national institution should operate and supply water to urban areas, policy has not yet taken into account how institutions should integrate urban water policy and rural water policy so that an effective integration strategy is developed to successfully manage the entire water sector. If policy and laws are integrated, they will coherently improve the delivery and provision of services by these institutions. Laws are important and they have to be linked to policy as part of integration strategy packages aimed at strengthening the water sector. Currently, policy and laws are implemented separately, therefore obstructing how an institution will apply them for the benefit of citizens. The absence of coherent policy and laws has also contributed to ineffective institutional performance as the institutions apply the legal system separate from policy, therefore rendering the integration approach inefficient for the delivery of water. This has led to ineffective policy and laws, which has contributed to the lack of cohesion within the institutional framework and, consequently, made the application weak. It has led to a sense of disjointedness, which is a result of incomplete sector policy reform. Legislation and policy have to be embedded and implemented within the same institutional framework in order to strengthen institutional performance in terms of water service delivery. Within institutional theory, particularly in the context of ecological theory, it has been noted that institutions were established according to the rules of the game; however, in the Zambezi basin, people perceive

institutions as merely physical establishments not primarily concerned with improving the water sector. This is because of the existing water situation in the area. This is evidenced by participants stating:

> The current institutional framework focuses on the physical presence of the building but doesn't pay attention to the significance of the institutional operations of the various parts composing the structures of the institutions or even ensuring that they have maintained the necessary specifications of critical importance in the allocation of water resources in the Zambezi rural basin (Members H, I, J, M; Institution B; Members D, C; Institution A).

Within the quote, there are three key issues: viewing the institution as a mere physical building; the lack of critical allocation of resources needed to manage the water sector; and the ineffectiveness of how institutions carry out their operations. In this context, the focus on the physical building rather than the institutional operation has led to the institution's failure to fully implement the institutional reforms set out in the state policy; the institution's delivery system, in terms of oversights, regulatory systems, mechanisms of support and direct water support resource allocation, has been identified as being very weak. For instance, resource allocation in rural areas is limited and almost non-existent, therefore making the water sector ineffective in terms of service provision. Subsequently, it has led to legitimate concerns being raised around the current state of resource allocation in terms of water supply security, water demand, and water quality. There has also been a major delay in institutional key decisions required for the increase of water resources to key areas in the Zambezi basin; this has also increased the risk of water shortages, which has led to an increase in socio-economic problems. The delay in key institutional decisions has meant that certain schemes, such as the installation of water supply facilities and the rehabilitation of water facilities, have already been abandoned. In this context, water resource allocation management processes, such as how to determine reserves, classify water resource allocation, and verify water use, are very slow in terms of their implementation and this has subsequently affected institutional ability to improve water sector management. Other participants emphasised that the problem of policy and law integration is that the institution in charge does not guide the laws and regulations to integrate them within the overall policy. If an institution is to be effective, law and policy must be equally integrated and harmonised and have a place within the legal

and regulatory framework. The current institutional framework is not pragmatic, as it is non-responsive and ineffective at accommodating water activities on a broader scale. This shows that the institutions have not permitted the water sector to perform as predicted and that this integration, therefore, can be recognised as an end in itself that gears the system toward achieving improved water supply. This next section will determine how the NWASCO has supported citizens to participate in water activities.

6.2.1.5 HOW DOES THE NWASCO SUPPORT THE PROCESS OF CITIZEN PARTICIPATION IN THE WATER SECTOR?

With the newly introduced water policy reform, there was emphasis on the radical change of allowing people to participate in water sector policy reform, which contained implications for the decision-making process in water management. But this has never been implemented at the level of rural communities, and has only been implemented for those stakeholders with great influence over the water monopoly in urban areas. The 1994 Water Act and subsequent acts were meant to improve citizen participation in water sector management. This could have provided a strong legal basis for poor people to participate in water sector activities. The findings of this study show that there is very limited participation from water users in water sector activities at the rural level. Water policy implementation does not encourage poor people to engage in water sector management, consequently excluding vulnerable citizens from accessing a water service. Citizen participation and the process of representing citizens in the water sector via the institutions involved has been identified as problematic; participants expressed the view that:

> The process of water policy implementation has excluded vulnerable citizens like us because, most of us were not even aware that we have the right to participate in the decision- making process for the management of the water sector. This why the water problem persists today, even though the area has abundant water resources which could have served the poor and improved our lives… (Members O, N, M; Institution A; Members I, J; Institution B).

The above quote emphasises that citizen participation in water sector management has to be properly implemented; different water service users should participate and be kept equally informed on how water sector policy

reform is being carried out and who is involved; this would make it possible for them to contribute to its effective implementation. In another development, participants emphasised that:

> After 18 years of policy reform in Zambezi rural basin, as members of the Zambezi community, we did not even know what was contained in the water policy document and the kind of institutions involved in reforming the water sector … we were not aware of what was discussed in water policy or even heard or read about the Water Acts. It was only known by other water institutions affiliated to the state institutions… because were not even knowledgeable of it… (Members of households AA, AB, AE).

The above quote demonstrates that the lack of knowledge of members of communities on water policy reform might constrain their participation in the water sector decision-making process, even if they were requested to participate. This provides a challenge to institutions to strengthen this aspect of water user participation so that citizens are better able to understand, through participation, the dynamic nature of the implementation of water sector policy reforms; this would also improve the knowledge of poor people regarding the water policy sector. The review of the literature also emphasises that citizen participation needs to be given more attention in water institutions; for instance, it was noted that policies have to be formulated to permit citizens to participate, as this is currently lacking. This lack stems from the fact that institutions have neglected the significance of citizens' views in shaping policies. A study by Basson (2010, p.65) specifies that the issue of citizens' participation has been highly emphasised in countries such as South Africa, Zimbabwe and other developing countries, but it has not yet been fully pursued as different states have different vested interests in the implementation of water policies. This impacts the effectiveness of the implementation mechanisms that ensure the participation of stakeholders in institutions. Institutions, therefore, have not been in a position to promote citizen participation in the implementation of their policies in the water sector. For instance, certain water supply projects have been delayed not only due to the lack of institutional willingness, but also because it has proven impossible to incorporate the views of citizens. Nevertheless, there are certain exceptions observed in countries such as Kenya where the water participation of key citizens is being slowly implemented without necessarily obstructing the original policy agenda on water supply (Cai *et al.,* 2011, p.45). This confirms the findings of this study, in which respondents

emphasised that promoting participation of stakeholders in the water sector has to be part of policy and institutional reforms as well as good governance, and that it is necessary to ensure that capacity is developed at the institutional level to strengthen collaboration between institutions and communities. This would strengthen the implementation of how institutions incorporate citizens' views in the management of projects and programmes in the water sector. In this regard, it is evident that citizens' participation is needed, because when citizens participate or have a say in the running of a water programme, they can ensure that the water sector's activities have citizens' backing. It would improve how the institution carries out its implementation of policy at the rural level. It would also promote a partnership with citizens on matters related to the water sector. The next sub-section will examine to what degree the national institution dealt with the issue of institutional complexity in the water sector.

6.2.1.6 TO WHAT EXTENT DID THE NWASCO ADDRESS THE ISSUE OF INSTITUTIONAL COMPLEXITY TO ENABLE WATER SERVICES?

In modern times, various institutions have adopted and implemented water policies; this has involved a number of agencies such as ministries, water regulators, technical water committees, and so on. These institutions operate at different levels of the regulatory process, and are trying to fulfil their functions, which include how they coordinate, how they provide technical support, how they plan, how they provide a better price regulating system, how they issue water licences, how they set their standards, how they carry out the monitoring of the water sector and how they ensure that enforcement mechanisms are strengthened. The term "institutional complexity"(Basson and Van Rooyen *,* 2001) is based on this institutional fragmentation of functions and the level of competency within the water sector across all the departments and agencies involved. The issue of institutional complexity has become very important in the water sector because of its high presence. How do we determine if there is institutional complexity in a certain water sector? This is observed when there are a very high number of institutional interactions which will lead to power struggles among institutions in terms of how their water agendas are protected. In this context, effective supervision of and coordination between agencies involved in water resource management, at either the national or local level, is

decisive in determining how water laws are complied with in order to achieve desired outcomes. In this regard, institutional complexity in the water sector has two dimensions: the first is a vertical dimension, as it is linked to governance issues in agencies; and the second is a horizontal dimension, as it exists amongst similar tiers of agency governance. With such dispositions, the connections between agencies are not clear and not effectively administrated to deliver outcomes. This arrangement has produced negative results, as already mentioned, and consequently resulted in the sub-optimal allocation of resources. To obtain permits, water users have to undergo two processes, that is, the process of securing a water permit has two stages: active and current water users have to go to the sub-office of the Zambezi Basin Council, while those seeking to apply for a water permit or water agreement have to go to the NWASCO's Sub-Regional Bureau. The application process for a permit takes a long time and is dependent upon the individual's level of income. This arrangement has seriously undermined the agreed objectives of the water policy reform and institutional framework. This is clarified in the following case.

In the first instance, water users or households were not aware of the existence of water institutions in the area where they could seek help in terms of the provision of a water service. In this regard, one can argue that institutions being classified in this manner have generated an environment which has become too complex to permit rural water users or households to access water. This has created confusion among water users or households regarding water access, as there are multiple institutions within the water sector. Participants in the Zambezi rural basin emphasise:

> …issues of water in the Zambezi rural basin create complete confusion in the way institutions are organised. One day we were planning to get involved in the irrigation system; my plan to take water from the Zambezi River Authority area and begin some agricultural activities through the use of the irrigation systems. Our intention was to start the process of a water permit application ; when we asked some people in the area about the process of acquiring a water permit application and how long it takes, no one was aware of the permit acquisition (Members of households AE, AF, AG).

The above quote indicates that there is some confusion in terms of the process for a water permit application, which is extremely discouraging to poor people in rural communities. However, given the significance of the NWASCO's role in

the supply of water and the promotion of water regulation in this sector, the above quote highlights that the lack of effective awareness about which institution is responsible for the water sector and how long the process to access a water permit takes demonstrates that the implementation of water policy reform is complex in relation to the issuing of water permits to poor people. A study by Chenje and Johnson (1996, p.24) specifies that one of the many issues affecting the implementation of water sector reforms is facilitating permit acquisition in order to allow citizens to access water as has been envisaged within the water policies of diverse developing countries. This study argues that institutional complexity in the water sector, compounded by the lack of effective coordination and supervision at the rural level, has played a prominent role in attenuating the effectiveness of the regulatory framework, and therefore institutional performance. In the next section, we shall examine how the NWASCO dealt with institutional coordination within the framework of the water sector.

6.2.1.7 HOW DID THE NWASCO DEAL WITH INSTITUTIONAL COORDINATION IN THE WATER SECTOR?

In the above quote, the complexity of these institutions' coordination mechanisms was primarily due to their ineffective coordination in the management of the water sector. This emerged as one of the most important issues to have impeded the work of the NWASCO and other institutions. In this regard, when participants were asked about the collaboration between the NWASCO and the village water committee in the Zambezi rural basin in terms of the delivery of water sector services, participants indicated:

> There was a relationship existing among these institutions, but this relationship needs some kind of enforcement in order to implement water policy reform effectively. But over the years, the relationship was purely consultative when there was a problem of water generally in the Zambezi rural area did not continue because of the limited roles of institutions such as the NWASCO, and it has only remained between other government departments such as the Ministry of Local Government Authority and the Ministry of Health. On the side of the village water committee, the relationship doesn't exist presently, but there is opportunity to strengthen it … These institutions pursue the same objective of water delivery and sanitation but they differ in terms of the

> mechanisms of implementing policy based on their institutions' water needs (Members of households AH,AI, AJ; Members M,O; Institution B).

In this context, the lack of enforcement around the collaboration between various institutions has also significantly contributed to the ineffective participation of the village water committee in the activities of the water sector. The process has significantly allowed only those institutions with state mandate to collaborate on developing water policy. The gap in institutional objectives has contributed to a lack of cohesion in terms of water sector policy implementation and is a matter of concern, as this challenge has to be met and dealt with. Regarding this perspective, participants also distinctly pointed out:

> In the current context, a relationship does exist at a lower level; when there are water problems, you can see members of the National Water Supply and Sanitation Council (NWASCO) collecting views on the water problems during that period. However, after that, there is no feedback given to the citizens... in the rural areas. This indicates that this kind of relationship exists when there is pressure on the institution to determine the cause of the water problem, not necessarily to strengthen effective collaboration. One thing is that as member of the village water committee, we have never attended any meeting organised by either the National Water Supply and Sanitation Council (NWASCO) or any other government department concerned with the water sector**,** such as the Ministry of Local Government and Housing, and the Ministry of Health (Members of households AB, AC; Policy makers A, B, K; Institution A).

Based on the views expressed by respondents on the coordination between institutions, it is evident that the lack of effective institutional coordination between different institutions, and particularly between the NWASCO and other institutions, has created a system of institutional arrangement which is in line with the institutions' roles, responsibilities and accountability in the delivery of water sector policy reform implementation management. When citizens do not participate in the activities of the water sector within an institutional setup, it will lead to citizens being disadvantaged in accessing suitable water services. This presents a weakness within the current water institutional setup, in which a coordination system is not robust enough to ensure citizens are involved in the water sector. It can also argue, however, that although the scope of coordination is absent, there are some infrequent opportunities for participation; for instance, when there is a problem in the water sector, the NWASCO will consult citizens on a temporary basis. According to Chileshe *et al.* (2005),

when institutions collaborate, there is very little chance for institutional failure to occur in any circumstance, as coordination in the activities of the water sector and their implementation will be strengthened and a cohesive environment will be created in order to advance these activities. In many developing countries, the cohesion between institutions seems weak, as they were established to deliver water policy reform at all levels. Institutions operate on their own in order to fulfil their established objectives rather than advance the cause of the poor in the water sector.

Having discussed how the NWASCO has dealt with various issues in the water sector, the next section will focus on the village water committee in order to examine how it was constructed and how it performs in the water sector as an institution.

6.3 **THE VILLAGE WATER COMMITTEE**

In the previous section, the NWASCO was examined. This section discusses the Village Water Committee as the second key institution. It will also discuss how this institution was constructed, the source of its legitimacy, how its performance is evaluated and what exactly its functions are. This section will aim to analyse how the Village Water Committee executes its functions and how it operates and examines if people with better village committees have easier access to water or if they pay less. It will also aim to determine what distinguishes the successes from the failures and how, at an institutional level, success and failure are determined.

In an attempt to make water provision more available to poor people in developing countries, the water supply and sanitation sector is constantly developing and testing new strategies in an effort to improve water service delivery at a grassroots level. Kampala *et al* (2002) demonstrate that the concept of the Village Water Committee was introduced in developing countries to strengthen the water sector and to understand the dynamics of good governance at a village level. Their study indicates that throughout the world, governments have relied upon institutions to respond to and regulate the water

demand and supply of communities in terms of planning, construction, and maintenance of rural water initiatives.

A study by White (1997, p.25) also emphasises that village water committees can lead to effective management of the water sector around the world; this is because they are better equipped to act as an interface between state institutions and the communities they serve. They also explain that village water committees can bring a number of benefits to rural communities, such as increasing the transparency of process by organising meetings that are open to communities, sharing minutes of these meetings with rural people and ensuring that these committees have the power to penalise members of village water committees who cannot respect the rules and regulations in place for the advancement of the water sector. Furthermore, White (1997) emphasises that the committees can also enhance a demand-based approach by generating decisions regarding policy from a rural level, allowing the water service users to decide on the type of technology that they would prefer to be adopted, the total number of hours to be allocated to water service accessibility, tariff charges, and the way the service should be used by various users. In this regard, the next sub-section will examine how the Village Water Committee was created and its source of legitimacy as an institution.

6.3.1 HOW WAS THE VILLAGE WATER COMMITTEE CONSTRUCTED? WHAT IS THE SOURCE OF ITS LEGITIMACY?

The Zambezi basin Village Water Committee was designed as a water organisation that could function at the rural village level. It was constructed as a result of the water problems identified at the rural level. Problems included the lack of water supply and sanitation for the citizens of the Zambezi basin, as well as issues of policy in the rural water sector, which the Village Water Committee was expected to deal with as a locally established smaller institution. A study by Watson (2009) raises a question around whether this institution is suited to playing a significant role in the implementation of water policy reforms in a local context. A report by the Republic of Zambia (2010) emphasised that, theoretically, the Village Water Committee was viewed as a smaller village institution, aimed at bringing people together to shape new ways in which water

can be managed in order to have clean and safe water; the committee, however, is not of significant importance to the state in terms of regulating and implementing policy in the water sector.

Within the framework of water policy, the Village Water Committees are considered smaller institutions aimed at providing information on government water projects to rural communities, rather than institutions fully involved in the participatory water reform process. Thus, Village Water Committees cannot guarantee success at a rural village level, because they are not part of the overall water policy agenda. The review of the literature indicates that there are four characteristics associated with the Village Water Committee's success: transparency, citizen participation, inclusion, and ownership of the institution with regard to water management (Kampala *et al* 2002). These four characteristics are need to be recognised within the water policy framework in order to permit the Zambezi rural water village committee participate in the water policy reform for effective of the water sector. But these four features are still lacking implementation within the water policy framework in the Zambezi rural basin.

The report by the NWASCO (2002, p.10) highlights that, in the context of the local environment, the Zambezi basin Village Water Committee is partly situated within locally recognised water institutions, because it has an administrative structure, but this structure is being weakened by the effects of policy reform adopted by the state. However, its administrative structure does not have a direct impact on water policy implementation activities. Its visibility as an institution has been overlooked or, in some circumstances, is irrelevant to the policy makers and other key players. This is unfortunate, as the effective management of resources requires institutions like this one to be at the centre of the regulatory and guideline setting process. The study by Kampala *et al*(2002) underlines that in an effort to effectively strengthen the functionality of the Village Water Committee, it is necessary to concert efforts at both the highest and lowest levels, as this is very crucial for institutional capability at the primary level. The primary level here refers to the responsibility of the government to take necessary decisions to improve the water sector whilst the lowest level refers to the institutions at the rural level which have to work together with the

government to implement policies in rural areas. The administrative structure of the Village Water Committee in the Zambezi basin is illustrated in appendix 3. The appendix shows that the Village Water Committees have a limited role and responsibilities as compared to the administrative structure of the NWASCO, which differs in terms of its functional organisational structures. A study by Komives *et al.* (2007) indicates that for the Village Water Committee to operate effectively and function correctly, it has to be strengthened in terms of qualified staff members, increased roles and responsibilities, and sufficient funding so that policies and guidelines are well understood from their technical perspective. A similar study by Prokopy *et al.* (2007, p.21) underlines that if this is achieved, the committee could help to drive policy agendas within the water sector. Furthermore, the study by Protokopy (2004) indicates that, in its current form, the Village Water Committee is faced with many challenges; for instance, the inability to obtain the necessary capital required to improve water supply, the lack of technical support and advisory mechanisms to improve service user's understanding of the water service, and the lack of partnership between the NWASCO and other agencies involved in the water sector.

In the context of the Zambezi rural basin, the idea and subsequent creation of a Village Water Committee in the country was much appreciated by citizens 2000. It was the citizens who came together to establish it as a rural water institution which will operate on a voluntary basis. It draws its legitimacy from citizens, who are considered the main actors behind its creation, although the state has the upper hand as it decides how it can operate within the water sector. This kind of institution is not even recognised as a legal institution, and this issue has not yet been resolved. Village Water Committees were also established in those areas where water was abundant, neglecting areas where water was not in abundance. However, in the Zambezi rural basin, the Village Water Committee has an important role to play in helping citizens to express their views and setting up water projects that will meet the needs of citizens. It can also play a role of maintaining water points and helping citizens to work towards paying their water users fees to sustain the water activities. It can further establish a demand –based approach aimed at bringing the decision making down to the communities where water users can have a say in decision making process. Furthermore, the Village Water Committee will help citizens to understand water

policy, and interpret it in terms of its implementation. Such institutions could have been created strengthened to support the delivery of water, but this is not the case in many developing countries where states have relied on their national water agencies to manage the sector and provide water (Narayan, 1995, p.14). Having examined how the Village Water Committee was constructed in this section, the next section will give more details on the issue relating to the Village Water Committee in terms of its evaluation to it performance.

6.3.2 HOW CAN THE VILLAGE WATER COMMITTEE BE EVALUATED IN RELATION TO ITS PERFORMANCE? WHAT DOES THIS VILLAGE WATER COMMITTEE DO? HOW DOES IT EXECUTE ITS FUNCTIONS AS A VOLUNTARY ORGANISATION? DO CITIZENS WITH BETTER VILLAGE COMMITTEE GET MORE WATER OR PAY LESS?

This section will examine each question separately in order to provide a better understanding of the Village Water Committee. As mentioned in chapter 2, local institutions have to be regarded as the main players in water sector management, but the literature does not define what a local institution is. From the researcher's perceptive, 'local institution' is a general term used mainly to identify institutions operating at a national level but not at a rural level. However, from the perspective of this study, local institution simply refers to the rural community water institution in a particular rural context; in this case, local institution refers to the Zambezi basin institutions. This has led me to investigate the significance of the roles of water institutions, as proposed in the conceptual framework in chapter 2. In this context, the examination of the performance of the Village Water Committee in the Zambezi basin has two perspectives: the first is to determine the role of this institution in terms of its responsibilities; and the second is to evaluate how well this institution performs in the water sector and, if not, what are the likely problems that constrain the effectiveness of water service delivery in the Zambezi rural basin. The next sub-section, therefore, will discuss the question 'how is the Village Water Committee evaluated?

6.3.2.1 HOW CAN THE VILLAGE WATER COMMITTEE BE EVALUATED IN RELATION TO ITS PERFORMANCE?

Participants indicated that the Village Water Committee is a small institution which operates in the rural areas of the Zambezi basin and has no regulatory powers to manage the water sector. This has limited how important this small institution can be seen by the rural people of the Zambezi basin. The original perception of the significance of this small institution has been questioned by many respondents, as it has not yet delivered the provision of water services as previously envisaged when it was established. Others said that despite this institution not performing as envisaged, it is still considered the most important institution for rural people. Its significance is recognised in the context of its affinity with the local rural community, which can help the Zambezi basin rural areas develop broader strategies in line with the needs of rural people. This affinity has not yet been strengthened in terms of helping this institution to provide the necessary services required by Zambezi rural basin communities. However, it is also emphasised by many respondents that the Village Water Committee has tried to ensure that the abandoned water projects are revived; however, only two water projects have so far been successfully completed. One such example is the irrigation project in ward 2 of the Zambezi rural basin, which was revived in order to give farmers access to water in order to irrigate their crops and feed their cattle. This could not have happened in isolation without the efforts of the members of the Village Water Committee, and the involvement of local councillors. The presence of irrigation facilities has permitted people in ward 2 in the Zambezi basin to improve their livelihoods by increasing their incomes and allowing them to send their children to school. However, for the Village Water Committee to succeed in its objective of supporting the delivery of water, it has to network with local councillors who have the ability to convey people's water problems to higher authorities. Another way in which the Village Water Committee has facilitated rural water projects is through the installation of a water pump in the rural community (funded by a prominent business) which gives local people access to water (see picture 1below).

Picture 1: Water pump[10]

Source: Field work Zambezi rural basin

With this installation, households in the area are now able to access water and the water hand pump services to up to 523 households in the Zambezi basin. This is an important achievement for the Village Water Committee which has served people by providing facilitates that allow them to access water. This confirms the findings of a study by Holmes (2000) on institutional evaluation, which shows that Village Water Committees will ensure effective facilitation of the water programme among rural people. Although the committee is committed to supporting households in accessing water services, the degree of support is limited, that is, not all the people in the Zambezi rural basin have water. This research has found that only a tiny population is served through efforts made by this institution when considering the overall size of the population in the rural area of the Zambezi basin. However, it demonstrates that meeting water demand and ensuring water coverage is not easy for a smaller institution like the Village Water Committee to manage.

This is because the Village Water Committee's performance is constrained by various problems, which include how to set rules to govern the operation of the water sector, and how to improve the features of water infrastructures of the local community, how to enforce a set of rules which can work effectively, how to ensure that accountability of the board of the Village Water Committee is

[10] The presence of the water pump in the Zambezi basin shows how much people in the rural area value the service of Village Water Committee.

assured, and how to strengthen the capacity of the local rural leaders to get involved in the operations of water sector activities. These factors have partly obstructed how this institution has to operate in order to expand water sector services to all its members. This is because the Village Water Committee has not yet reached the stage at which it can address these factors; consequently, it is not in the position to clearly implement strategies to solve these issues in order to deal with the issue of water supply and demand at the rural level. Regarding this perspective, the chairman of the Village Water Committee stated:

> The people**,** particularly the households**,** have suffered a lot as a result of the limited role of the Village Water Committee. Its role has impacted on the ineffectiveness of this institution which has led the community to not have access to affordable water as prescribed in the water policy. We have written to the Zambian government on several occasions for our institution to be recognised as a viable option for the implementation of water sector reform this was in 2002 and 2005 but no response has yet been received. Furthermore, because of this, we decided to leave the organisation, but members of the Village Water Committee resisted and pursued me to remain in the post (Member A; Institution B)

The idea expressed by the chairman of the Village Water Committee regarding the recognition of its Village Water Committee is vital; if this smaller institution is brought to the attention of the state, it will help the state and the main institution (NWASCO) to work together and support water sector policy through joint efforts. The Village Water Committee will become autonomous, and could also help analyse policies proposed by the state, and see how well these policies fit into the realities on the ground. From this perspective, the lack of transparency around empowering rural local people's institutions has also hampered the ability of these institutions to play a crucial role in the delivery of water services. This has even contributed to members of the Village Water Committee becoming morally discouraged, because this institution is unable (due to external constraints) to support the rural people, and, consequently, does not contribute to the general development of the Zambezi rural basin water sector. Consequently, this has had a further effect on poor people in relation to the supply, affordability, and accessibility of water which have remained critical issues for them. Subsequently, it has also impacted the water service implementation process. Members of households said that:

> Our village is in crisis, as the Village Water Committee does not put much effort into improving the water situation. This committee was established with the agreement of people in this village to provide a voice to policy makers for water services in the area, but actions are not being taken, and we are still facing water storage and supply problems (Members of households AE, AF, AG, AH).

The institutional failure that led to inaccessibility of water is being attributed to the Village Water Committee, not state agencies such as NWASCO, which is considered to be at the centre of policy and regulatory framework implementation. In this regard, the analysis highlights that people in the Zambezi basin believe that when they decided to create the Village Water Committee, the problems faced by the community in terms of water supply would be resolved. This was not the case, as the committee has a narrow responsibility which is not even legally supported through official recognition of the committee as a state-mandated formal institution that can regulate the water sector and lessen the water crisis. Having discussed the evaluation of the Village Water Committee, the next sub-section will discuss how the committee works and what its functions are in the delivery of water sector activities.

6.3.2.2 WHAT DOES THIS VILLAGE COMMITTEE DO? HOW DOES IT EXECUTE ITS FUNCTIONS AS A VOLUNTARY ORGANISATION?

It was emphasised that, since the Village Water Committee's establishment, this committee has been involved in pushing for water supply and sanitation services in order to meet the water requirements of citizens. It is principally involved in project negotiations with the state. It has also been involved in trying to relocate decisions around the water sector to a rural level, and allowing citizens to have a say on the kind of technologies they require, where water supply facilities should be located, and how many hours would be needed to fetch water from these facilities. But this has not been an easy task to accomplish because of the nature of this institution in the water sector. This institution is not empowered in the water sector, but it has a willingness to perform should this power be granted. In this regard, participant's stated that there was reluctance from the state to provide an enabling environment within the framework of water policy. Participants stated that:

> Despite the fact that the Village Water Committee is small, and is not empowered, current management is trying to improve the water situation through networking with other stakeholders on negotiating about water fees for the poor, choice of supply technologies, as well as informing the central government on the present water situation. This shows that this institution, which has no financial resources, is trying to help the poor in the committee (Members J, K, M, O; Institution B).

This shows that since its establishment, the Village Water Committee has pursued the development of the water sector by trying to create a networking strategy, even though it does not have a formal legal mandate to do so; however, the degree of commitment is being acknowledged by citizens in the Zambezi basin. It is also necessary to highlight that, within the context of policy reform, negotiating water fees for the people is a very complex process, particularly when an institution has no legal responsibility to push for such a fee strategy. The Village Water Committee has no legal powers, which means that it is not covered by legislation and it only operates on a voluntary basis. The small institution has been constrained by this status and it was expressed by participants that:

> One key problem facing the Village Water Committee is its voluntary nature. This is attributed to the fact that it is powerless, and its functions are not well clarified**;** therefore**,** it is unable to operate effectively in the water sector for service delivery. Its voluntary nature came as a result of an idea from the community in the Zambezi basin to improve the water situation. But the state is not entirely involved in providing the necessary capacity and financial resources to strengthen its ability to manage the water sector. Everything is coming from everything comes from above, and not from below in terms of policy reforms and implementation. We have seen that this is a way of making institutions fail to deliver the needed water supply in communities (Members C, D, E, I; Institution B).

People in the Zambezi basin emphasised that because the Village Water Committee is voluntary in nature, its sustainability is questionable in terms of providing useful water services to the community in general. Here we have three key issues which have been highlighted: a lack of support from the state regarding such institutions; non-existent capacity at the institutional level; and the difficulty of securing funding. The emphasis is that a voluntary institution is not the best option for sustainability, because an institution must have capacity to contribute to the needs of rural people in terms of policy implementation and delivery. Participants expressed the following view:

> Even if the state does not support the Village Water Committee, we are planning to mobilise resources in liaising with other people like businesses to work in partnership with them in order to improve the water supply situation. The focus will be to convince the local rural authority in order to ensure that a facilitation mechanism is attained. We have an established committee but what it requires is both financial and human resource support to carry out its functions properly. What we are acknowledged that at least some sort of institutional rural structure does exist and it is known by the authorities in the district area (Members G, H, J; Institution B; Members A, B, C; Institution A).

This quote demonstrates that the people in the rural area of the Zambezi basin are showing a certain kind of commitment to support such institutions at all costs, thus allowing it to carry out its functions sustainably. It will be a good starting point for the committee to use the support of the people and become financially self-sufficient in order to support the process of water delivery. The mechanism proposed to attain such an objective was that the community was prepared to liaise with all the institutions involved in the water sector, and to reach a consensus on the management of institutions. In this context, the main reason why the state does not want to support the Village Water Committee (and therefore, water empowerment at a grassroots level) is that it does not want to get involved in financing the committee to facilitate its operations and allow for capacity building. Currently, this committee is viewed as ineffective and once given power, it might change the course of water policy, therefore creating a power conflict between the state and the community over policy and service delivery.

In this regard, our findings highlight that the Village Water Committee has demonstrated its commitment toward water issues but that it is constrained by the way the state has formulated the water policy, which is focused on principally looking at the water sector as a whole and not necessarily taking into account the needs of the rural people for water sustainability (which can be achieved through a focus on the concept of the Village Water Committee). This situation shows that the role of institutions can be understood in various different contexts: in this case, we observe that despite the committee's role being limited in terms of its operation and funding, its voluntary nature indicates that people are committed to the issues surrounding water policy without being given any incentive. This demonstrates that if the state opened up the environment to this type of institution, it could manage the water sector more

effectively through the incorporation of people's demands and needs for water supply. As participants noted:

> With the current dynamism in the water sector, the need to have an institution that serves the citizens is vital for the growth of the water sector, as it will help to minimise the effects of water shortages in terms of supply and demand. It will permit the support of the demand approach in terms of water supply to meet the requirements of its citizens (Members I, H, O; Institution B; Members of households AB, AH, AJ).

From the above quote, it is demonstrated that the citizens believe that if the Village Water Committee is strengthened, it will be able to improve water supply facilities in terms of their efficiency, effectiveness, equity, and ability to empower its citizens to take charge of policy and make institutions more transparent in order to achieve water coverage. Even though there is an emphasis on its role, a study by Saghir *et al.* (2000) emphasises that the success of the attempts to meet the most critical challenge, which is to change institutions' focus and adapt them to accommodate local rural realities, depends on the engagement of the state in reforming the water sector so that rural people have the right policy and institutions to deliver what the community needs. The next sub-section will try to provide the views of the citizens on how the Village Water Committee has helped them access more water or pay less.

6.3.2.3 DO CITIZENS WITH BETTER VILLAGE COMMITTEES GET MORE WATER OR PAY LESS?

The analysis conducted on behalf of this study indicates that there is recognition of the Village Water Committee as an institution aimed at supporting the water sector, particularly for the supply of water to its citizens. Participants indicated that, since 2010, the Village Water Committee has tried to provide certain water services to citizens:

> ... Since this Committee has been established**,** it has helped citizens to get water through the establishment of six small bore holes. This has allowed citizens to collect water; particularly those who have no means by which to pay for water from wells independently owned by private individuals in the communities.... This has helped citizens to access water throughout their normal domestic activities (Members A, C, G; Institution B).

The presence of these six bore holes (pictured below) has helped citizens to get much needed water, which has permitted some citizens to avoid paying a higher price for water. This is one example of how citizens consider the presence of the Village Water Committee has improved an aspect of the water supply facilities in the rural areas of the Zambezi basin. This has helped reduce the distance citizens need to walk in order to fetch water and has brought water nearer to households.

Picture 2 Boreholes

Source: Field work-Zambezi rural basin

However, with the presence of these boreholes, the Village Water Committee has also been able to facilitate a negotiation process with other independent water suppliers in order help citizen's access affordable water at an affordable price. For instance, the committee has helped those who are poor to fetch water at an affordable price while citizens who are able to pay compensate for those citizens who are not able to. This approach has helped both groups access good quality water. In most systems for paying for water, owners have come to believe that it is fair to punish citizens who lack quality water and protect

citizens who have the ability to pay money to access water. Citizens who are affiliated to the water pump have to pay more because the owners have to maintain it in order to provide good quality water. However, in a village where the water scheme is in operation, the majority of citizens will have the possibility to access the water pump. Therefore, no group of citizens is excluded from water supply facilities. Nearly two third of those interviewed in the sample indicated that very poor citizens are not heavily charged, meaning that they pay less for water. Under half of the total sample interviewed specified that those citizens who were not able to pay were allowed free access to water for one hour per day. This finding has been evidenced in the study by Chileshe *et al.* (2005), which specified that citizens believe Village Water Committees can offer service delivery and have at least provided a platform for better water supply. In the context of this study, this shows that the presence of the Village Water Committee has, in one way or another, contributed to solving the problems of water in terms of supply and prices. But challenges still remain in relation to how this committee could be strengthened in order to allow citizens to access more water for other domestic and related activities. Having examined how the Village Water Committee has given citizens improved access to water supplies and how it has influenced the price of water, the next sub-section will evaluate how this Village Water Committee has implemented policy in the water sector in order to determine its effectiveness.

6.3.3 HOW DO WE EVALUATE THE VILLAGE WATER COMMITTEE IN RELATION TO POLICY IMPLEMENTATION?

In Chapter 2, we highlighted that policy implementation seems to be a complex process due to the various stakeholders involved in transforming the water sector. The current policy implementation mechanism has caused numerous delays in the delivery of water supplies and the development of vital water infrastructures. As specified by Hatibu and Mahoo (2000), implementing policies in developing countries (and particularly in cases where an institution has no legal status) in order to effectively delivery water seems to be difficult. The Village Water Policy will face numerous challenges before it can ensure that policy on water supply is effectively implemented. When asked about the role of the Village Water Committee in policy implementation, participants from the

Village Water Committee expressed the view that institutional empowerment in this area is moving too slowly and that there needs to be a more holistic approach towards the rural water sector in terms of policy and speeding up implementation. Policy implementation is slow because of the Village Water Committee's legal status, which needs to be addressed; it does not currently permit this institution to have a say on policy planning and implementation, consequently making its ability to implement policy non-existent from an institutional perspective. Its inability to legally implement policy means that the institution is incapable of the driving the water sector in a direction that meets the needs of the community. Even if it was permitted to implement policy, policy implementation might take longer to produce tangible outcomes in the current institutional environment. For instance, the policy on water supply facilitation can only be implemented in the long run; this is because the process of creating an enabling environment for resource mobilisation takes a long time and, therefore, makes the application of this policy slow. In this context of the Zambezi rural basin, it was evidenced by one of the participants that:

> Since the Village Water Committee does not have any government mandate or other legal frameworks to implement policy, its role for effective policy implementation has been hampered due to its inability to accommodate rural local people's views and even all its staff are not well skilled to handle the challenge of policy implementation at the rural level (Members C, D, F; Institution B; Members of households AA, AB, AJ).

The views expressed emphasise that people are concerned about the lack of a government mandate for the Village Water Committee to effectively reform the water sector, and this has significantly hampered this institution's efforts to incorporate the views of the rural people into a coherent policy framework for effective application. Skills are very important for the institution as they will help the institution implement its programme as per its assigned objectives and outcomes. In its current form, from the chairman to its most junior members of the Village Water Community, there is a non-existence of skills regarding water management, as these members only manage this institution based on their personal experiences. This, does not put them in a position to implement effective policy, and has to be addressed once the institution has been given a legal status. Some argue that, although the institution's capacity building is weak, it could develop awareness programmes to attract people living in the

community who have retired from public institutions after having worked in ministries linked to the water sector. These people could then help the institution to develop a proposal to the state, outlining how it will manage the water sector if it gets legal status and recognition.

However, this research has found that, because strengthening rural water institutions has yet to be recognised as a viable option under the Water Act, the changes observed in the water sector are politically motivated and not actually reflective of the desires of the rural people and the recommendations of efficient water institutions. Including rural institutions in the implementation of water sector policy reform will continue to present challenges. This research also indicates that, although the speed of policy implementation is important and necessary, the degree to which the water sector will be reformed has to be considered when implementing reforms. This means that both policy makers and stakeholders have to come up with a range of institutional models that are comprehensive enough to link the speed of policy reform to water service delivery systems. It also further highlights that the Village Water Committee does not provide an effective policy environment as it is not autonomous and therefore cannot provide effective policies to improve the water sector policy environment. This indicates that the implementation of policy is complex in relation to the Village Water Committee, as this institution is limited in terms of its scope and its ability to delivery policy for the water sector. Having evaluated how the committee has implemented policy for the water sector, the next sub-section will distinguish between the successes and the failures of the Village Water Committee and consider how they can be determined.

Participants also noted that the Village Water Committee is central to any issue relating to water policy in the Zambezi rural basin, and it is necessary to improve its position by reshaping water regulations and giving it full rights. This will help members of the community who are considered as water users to be in a position to overcome the problems of water supply identified in the existing water legislation, which restricts the ability of the citizens in the Zambezi rural basin to access clean water. The Village Water Committee in the Zambezi rural basin has not yet adequately dealt with the issues with the water sector because it has not been in a position to reallocate water resource activities

efficiently in order to respond to the needs and conditions of the communities. The Village Water Committee was constrained by its lack of legal status. In this regard, any attempt to change the policy by the government has to ensure that community involvement is given priority within a broader water policy reform agenda. Participants also emphasised that for effective of the Village Water Committee, its role has to be defined with inputs from the rural people residing in the Zambezi rural basin.

6.3.4 WHAT DISTINGUISHES THE SU[11]CCESSES FROM THE F[12]AILURES? HOW DO WE DETERMINE WHAT IS SUCCESS AND WHAT IS FAILURE?

The findings reveal that the role of institutions in the water sector in the Zambezi basin is crucial to the development of water sector policy reforms and service delivery strategies. Although the role of institutions such as the Village Water Committee is limited, they have independently played their role in the provision of water services at some point during the process of water sector reform. For example, the Village Water Committee created boreholes for the community. Participants stated that:

> The presence of some water facilities**,** such as boreholes and wells, is also attributed to the presence of the Village Water Committee. This committee has also organised certain kinds of training on water harvesting with the help of members of the community who have expertise in the management of the water sector from the city(Members of households AI, AJ, AE; Members C, A, D; Institution B).

This has allowed people in the community to access water, and the presence of this institution has also permitted its members to gain some training in water harvesting techniques in order to collect and manage water properly. This means that the presence of the Village Water Committee has helped people access water and they are partly satisfied with how it operates in the water sector. It has planned to initiate water supply schemes between 2014 and 2015,

[11] The word success is used in this study to indicate effective progress made in the implementation of policies in the water sector by water institutions. It also reflects positive outcomes as a result of institutional efforts.

[12] The word failure is used in this study to reflect the ineffectiveness of progress being made in the delivery of water sector services by water institutions. It also reflects the negative outcomes as a result of institutional efforts within the water sector.

in order to influence the state and the institutions involved; it is also in discussions with major donors to support the development of a water campaign on sanitation and environment in the Zambezi basin aimed at raising awareness in wards or villages. It has also planned to secure training for its staff through collaboration with other nongovernmental organisations such as Care International, which is based in the United Kingdom. This training will include committee members as well as public agents. It is also in the process of negotiating with the state in order to gain a legally recognised status that will allow it to implement newly envisaged water supply schemes. This shows that, despite its limited current role, it is still pursuing a number of avenues in order to achieve the rural community's needs in the water sector. It has also liaised with prominent members of the community, calling upon them to be part of its management board as non-executive directors working on a voluntary basis. In this manner, members of the community could also play an important role in the development of water supply. This could become a very important step toward water service delivery within the community. The state has to encourage initiatives so that water sector provision is addressed in diverse contexts.

This model of independent community involvement might become an area in which the state has to focus on for water delivery systems. Members of the community can change the way water is perceived by contributing to the development of water reforms and their implementation; however, in the current model, they are always absent when major decisions in the water sector are being decided and implemented. Therefore, the rural water supply depends upon the independent actions of the community, because the Village Water Committee is not being given the right opportunity to be part of the overall water policy sector. Its isolation has pushed private individuals to take charge of their own water management systems rather than rely on an institution which is considered obsolete and unable to deliver water services. These are some of the reasons why water service delivery is limited in the rural areas of Zambezi basin, despite the region having abundant water resources. The limitations of water services observed in the Zambezi basin include the lack of water infrastructure and the fact that a number of households do not have access to water. This is compounded by the ineffectiveness of water policy in relation to water development in rural areas. Although institutions have been established in

the area, the status of water supply has not yet been improved and the poorer sections of society still experience water problems.

A study by NWASCO (2010, p.29) also indicates that the water situation is alarming, but the report fell short of highlighting the specific reasons underlying the water problems. However, the findings of this study indicate that this is why institutions in the water sector have accomplished very little in the area of water supply. Other reasons include the fact that the focus of policy concerned with the rural water sector is not well defined, and that water supply is not regulated to meet rural people's needs but is, instead, centred around satisfying policy makers' personal agendas and interests in the water sector. Although, the state has policies and institutions in place in the water sector, its interests do not accommodate the implementation of policies in rural areas and it is more concerned with the regulation of water for economic benefit. Unlike the government, which has a steady and robust revenue, rural areas do not have any prospect of improving their financial situation; why, therefore, should major investments be made in the rural water sector to improve water infrastructure or strengthen of rural institutions such as the Village Water Committee? In a study by Thompson (2001, p.10), it is confirmed that, within the policy framework, coordination between different locally initiated activities can effectively promote the sector as they will have diverse perspectives in relation to the policies implemented and the institutional model adopted. Here, 'locally initiated' refers to the fact that water policy has to be context specific in rural areas in order to create an environment that allows institutions to perfectly function in the delivery of water. In this context, 'perfect functioning' does not meaning that the water delivery will be efficient but that there will be improvements to the coverage of water accessibility in rural areas, and that this will be achieved through regulating and reinforcing water policy and regulatory frameworks to deliver maximal water services for the poor. As indicated in chapter 2, such action of strengthening coordination and citizen participation in the affairs of the water sector will be significant in the delivery of outcomes, because the implementation of policy will have the backing of the people. This is substantial, as institutions could also facilitate coordination through the process of policy implementation. This has not been the case in the context of the Zambezi basin, which has not seen any stakeholders (particularly the poor people) participate in

the coordination of the policy with the institutions in charge since the policy was formulated. In this context, institutions such as the Village Water Committees and Water Users Associations across developing countries have become less effective in terms of carrying out their functions and this has translated into challenges for the implementation of specific policies (Howe and Goemans, 2003, p.67). For instance, the study by Turton and Ohlsson (1999, p.33) argues that it is vital for the advancement of Village Water Committees and other water associations in the community to strengthen an institutional service delivery approach in improving the water access for the poor, women, and underprivileged groups.

Although the Zambezi Village Water Committee has no independence or autonomy within the regulatory framework, it used its own initiative to get involved in the delivery of water services. Participants from both the Village Water Committee and household members indicate that, as a locally established rural water committee, it has in the past influenced the installation of three boreholes which provide water to more than 556 households in the Zambezi rural basin. If this project had given this institution some kind of legal authority or recognition, the situation of water supply and service could have been adequately addressed and the water problem could, at this time, have been closer to being resolved. Unfortunately, this did not happen under the current water policy and institutional arrangement and it has constrained intended major achievements, consequently contributing greatly to the failure in the delivery of water services. The main question now is: how is it possible to make this institution more independent in order to strengthen water service delivery?

The analysis of the results indicates that the Village Water Committee has achieved some successes and as well as displayed certain failures. Its achievements can be determined in terms of water supply outputs in the delivery of service which were entirely dependent on the institution's own initiative, not its current official status. Its effectiveness has been constrained by a number of factors: its voluntary nature, lack of legal status, and lack of no power and responsibilities which would have allowed the institution to contribute to the development of water sector service policy. These factors have forced the

Village Water Committee to operate in an institutional environment in which there is a risk of institutional failure in the provision of the water services. It was therefore concluded that a change in policy and institutional structure was needed, which means that state policy makers have to shift the way the Village Water Committee is constructed and its mode of operation for effective implementation of policy and delivery of services. Koundouri *et al.* (2011) have further argued that user-driven organisations operating in the water sector will help create innovative approaches because they understand the needs of poor and disadvantaged people, which puts them in a better position than government managed institutions to serve as advocates for these people's rights.

Furthermore, participants indicated that one of the key constraints that lead to institutional failure is the lack of institutional clarity regarding what is needed in order to meet the objectives of the citizens. What is considered as success or failure has become a major source of confusion. However, they also said that, in general terms, the institution has failed to transform the community with regards to water supply, and that this failure can be attributed to the absence of adequate institutions at the rural community level to aid the acceleration of water policy reform. The next section will deal with water affordability and costs in relation to citizens.

6.3.5 WHAT DO CITIZENS DO ABOUT AFFORDABILITY AND COSTS?

This section will discuss the actions citizens take in relation to water affordability, costs and supply. It will first examine the cost of water, then move on to water affordability and end with water supply.

The literature review on water affordability indicates that water has to be affordable in terms of accessibility and costing. This concept emerged as part of the various declarations and statements made by the international community in an effort to make water affordable for all citizens. In 1992, it was specified in the Dublin Statement, "it was important for the nations to recognise the basic fundamental right of all their citizens to access clean water and sanitation facilities at an affordable price" (Hague Ministerial Statement, 2000, p.1).In March 2000, in the Ministerial Declaration of The Hague regarding the water

security of water, it was stated that “every citizen has the right to access water which has to be enough, safe and at an affordable cost” (p.1). The cost here is reflected in terms of the price of water accessed by citizens. Affordable water will lead to a healthy and productive life. In September 2000, at the General Assembly of the United Nations, the UN adopted “ a universal declaration on water, with particular emphasis on how nations can improve access to water so those people who are not able to afford drinking water should be given opportunities to afford it” (p.2). This emphasis on water affordability occurs because governments, having previously stressed the issue, now believe it to be resolved. Although the literature has emphasised water supply but the affordability of water for rural areas is less evidenced. The two key factors, affordability and cost, have to be considered when policies are being implemented, and the institutions guiding the water process have to ensure that they strengthen water accessibility in an affordable way, particularly for the poor, who are mostly marginalised. The main question is how do you define an affordable price? In this regard, the water sector has seen some improvement in allowing people to access water at an affordable price, as evidenced by respondents who indicated that the presence of the Village Water Committee has facilitated some discussion on water affordability with local water providers, such as private vendors, and people have become more aware of the cost of water. But its implementation of policy on water affordability seems always difficult to achieve, because vendors and other private water operators are focused on increasing their revenues which, consequently, affects the affordability of water for the poor. For instance, operators have the tendency to increase the price of water based on the fluctuations of the currency, Kwacha, which means that when the value of the national currency declines, the price of water also changes and vice versa. This has become a big issue for households that need water to remain at a reasonable price. The interviews indicate that the use of water varies considerably among households (that is, in terms of their daily water consumption) and this influences water affordability:

> … household daily consumption of water for its uses amounts to 60% but with current water affordability costs, its accessibility and consumption has tremendously declined at 20% per day of water because of the price of per bucket daily … This is very low because we haven’t taken into consideration other vital water uses such as agriculture, animals and

construction (Members of households AC, AF, AH; Members A, H, I; Institution B).

The decline in affordability is principally influenced by water cost, and the sort of activities that need water in households on a daily basis. As can be observed from the above quote, some households are unable to afford water on a daily basis due to price fluctuations, and this, consequently, affects the poor's access to clean water at all times. Water consumption is also influenced by the size of the households. For instance, in the Zambezi basin, the size of a family is estimated at three and eight depending on the birth rate. 'Three' indicates that there are three people per house, which indicates that the consumption of water is less compared to a household of eight family members, which is obviously larger. A larger family has more activities, and the affordability of water decreases as compare to a small family. The size of the family also influences water consumption: for instance, it was indicated that a family of eight will consume eight bottles of water per day while a family of three will only consume three bottles. This, however, is subject to further analysis in order to determine if the size of the family has an influence on the affordability of water and its consumption in the household. Participants indicated that this doesn't necessarily imply that the largest amount of water consumption can be attributed to larger households, as other factors such as how water is used for various purposes have to be considered in water demand. The consumption of water also depends on the individual's ability to drink water and how the water is used for domestic purposes.

According to the field results, it is acknowledged that it is very difficult to purchase sufficient water quantities due to the high prices associated with it. Interestingly, despite water price being higher, few households in the Zambezi rural basin have expressed to purchase drinking water while other households who do not have the financial means to purchase the quality drinking water will collect water from the nature sources such as rivers. Other households were not satisfied with the water situation, however, and indicated that the issue of water quality has become a very pressing issue in rural communities: the better the quality, the higher the price. For instance, citizens state that they pay ZMK (Zambian Kwacha) 1550.99, which is equivalent to 3 USD (NWASCO, 2010, p.29). This reflects the cost of water affordability per household in the Zambezi

basin. With such a high cost, how can people afford water and improve their living standards? The state has to look at this area, and make sure that water is not necessarily cheap but affordable in terms of price so that people can purchase it. This finding is reflected in a study Hamstead (2009, p.29) conducted in developing countries, which shows that households were paying higher fees to access water on a daily basis: 800 households paid 4 USD cents per day to gain affordable water. This shows that water cost is still high even in those areas where the institutions in charge of implementing water policy operate effectively. In order to reduce the cost of water, it is necessary to adopt new approaches, such as permitting people to pay a small fee which will support the maintenance and operation of common water sources, in order to lower water price so that it can become more affordable. In this regard, since water quality is at the centre of increasing water price, participants expressed the view that the poor quality of water is one of the largest factors that institutions have failed to address at the rural level. Others also indicated that, despite the emphasis on water quality and its influence on affordability, the quality of water has slightly improved in some areas of the Zambezi basin with the provision of safe drinking water. However, there are challenges to be faced by institutions in implementing water policies in order to ensure the affordability of water for all citizens. The challenge has to be met: institutions must value water sector users, and must also balance water sector prices with the needs of the people in order to determine if the price of water is fair or not. However, the demand management approach has to be developed within institutions in order to meet the needs of poor people; those at risk of not affording water in communities have to be considered as well, because they represent the majority of the citizens. This analysis indicates that water quality has remained an underdeveloped area in policy and that the institutions in the water sector have not emphasised providing good quality water for rural poor people.

In other arguments, the cost of water is due to the lack of efficient water services which affects the poor as they cannot afford to connect water to their households. In the Zambezi rural basin, the number of households connected to water at the time of field work is estimated at 623; these households are able to pay the connection fee, which is currently USD 200 per household, excluding the purchase of meters and other materials (in total, with these materials, it

comes to USD 350). The connection fee is very high in relation to the socio-economic status of the country, including the Zambezi basin. For instance, in the Zambezi basin, many people are traditional farmers, using agriculture to feed their family, and not necessarily producing to supply the market. They produce only enough to feed their families and the remainder is sold to get extra cash to pay the education fees for their children. This demonstrates the average household's ability to afford to connect to water; they are constrained by their inability to generate enough income to access these water connection systems. In these circumstances, they only have one choice: to fetch water from other sources. For instance, participants stated:

> Because of the cost of water, they get up every morning and go to fetch water at very long distance five times a day, they use a 20 litre plastic container. It is very difficult for them! They said that when they decided to help my mother in collecting water, their age were in the range of ten to twelve. In that period, they used to collect water from 1.5 miles. In the present time, they collected water from boreholes at a working distance of about 15 minutes from our houses. They even stopped school because of helping their mothers and brothers with water, washing and other related domestic activities. […]. With all difficulties in water, they were asking the government to improve water service provisions in the area, so that they were able to have access to water at any time and also make water free for poor people (Members of households AC, AE, AJ).

The above quote indicates that the water sector is not well managed, and that the issue of the cost of water is not a new phenomenon. It has existed for a long time and it will continue to unless measures are adopted to help poor people access water freely or at very low costs, taking into account the level of living in these communities. The suggestion raised in the quote about making water free for all poor people is attractive, but the problem with making water free is that those who provide the water will not then be in a position to effectively maintain water supply service facilities. When water is made free for all, the state or institution in charge has to come up with sustainable ways of generating income to support the maintenance of water supply facilities, as evidenced in the quote below:

> With the cost of water affordability and accessibility, what is needed is that those institutions and service providers have to possibly set up a minimum water price which is affordable for all rural water users to pay… this will ensure water sustainability, is ensured and continued perhaps in a different situation, charging the poor with a specific life time rate in

> order for us to be able to have effective water (Members of households AG, AE, AB; Members C, D, E; Institution B).

In line with this quote, water pricing is an important area that water institutions should focus on, but they have to ensure that poor people are well protected from having to pay a very high fee to access water. However, it is important to consider that, with water pricing mechanisms, wealthy people are not advantaged at the expense of the poor in rural communities.. For instance, during the interview, respondents emphasised that the institutions in the water sector have to consider coming up with a water pricing which is fair in order to prevent poor people (who are considered weaker) from having to continue paying higher prices compared to wealthy people. The pricing of water should be made much more reasonable because it permits the recovery of water costs in full, and the recovery of the costs should take into account water user's ability to pay for water. In order to attain this, participants stated that:

> Water institutions should be more independents, meaning that they have to be fully autonomous in developing guidelines and taking into account the needs of the poor people in price fixing systems (Members H, D, G; Institution B; Members of households AC, AD).

This quote explains that, with full autonomy, institutions will become financially sound in order to maintain water supply facilities and implement policies beneficial to poor people.

For instance, a study by the World Bank (2010, p.66) specifies that, in normal circumstances, a household has to have a 20 litres of water per day directed towards household activities. From that amount, 11 litres are directed towards drinking water and cooking requirements and the remaining 9 litres are for washing and bathing. However, in situations where water is highly priced or expensive (both in terms of the energy and time required for collecting it) poor people have no choice but to cut the total household water consumption to 14 litres or even less, also reducing the frequency with which they bathe.

According to Yarrow (1999), when water is made free, the main result is that the service providers are not able to collect the necessary fees to maintain water infrastructures, and this will lead to unsafe water, as well as causing water supply systems to deteriorate and eventually collapse, as has been observed in many developing countries.

Furthermore, affordability of water is also linked to the issuing of water permits, which do not allow citizens to access and afford water as they wish. In this regard, affordability is also linked to the issue of corruption in the water sector which has limited the access citizens have to affordable water. In this context, the next sub-section will examine how citizens perceive the issue of corruption in the water sector.

How Do Citizens View Corruption as Linked to Water Affordability?

The issue of corruption was raised as the one factor which has contributed to the lack of affordable water to poor people, as evidenced in the quote below from one of the participants, who stated that:

> The water sector has been plagued by corruption, because, they tried to get the water permit to install a borehole in the area, but we were (members of the households and members of Village Water Committee) not able to, because we were required to give money to the officers dealing with the permit application process. This has not allowed us to continue with the application, and consequently we abandoned the process of the permit application. Before that, we even went to see the chairman at the Village Water Committee about the process of permit application use, he told us that he had no power to “influence “his authority to help the community gain access to water services when they want them. They were informed that they should go and see a local member of parliament, and they took my bicycle and went to the office of the local member of parliament “” his secretary asked us what was the problem, they explained that the local member of parliament was not available, and it will be difficult to see him as he is always busy with his work. … With such incidents, they were discouraged and abandoned the permit application process (Members A, B, C; Institution B; Members of households AA, AB, AC).

The above quote demonstrates that the issues of corruption and the ineffective transparency of the water sector are still key factors which might constrain the poor from accessing water, and they consequently also affect water sustainability. The findings of this study indicate that corruption in the water sector has also made the poor pay higher prices in relation to water price charges for connection and other related water activities. This is because corruption ensures that poor people have to pay bribes in order to access water services. Different forms of corruption have been identified in water sector management in the Zambezi basin; for example, there are certain practices which permit institutions responsible for issuing permits to delay issuing water

permits to those who are not wealthy. In another example, Zambezi rural basin companies might divert water from deprived areas to advance their own business interests in agriculture and animal husbandry industries. In other circumstances, money directed to improve water infrastructure might actually be diverted to other unrelated water activities, thereby constraining the implementation of the reform process in the water sector and increasing the cost of water. As identified by the participants, in order to resolve these diverse forms of corruption, water affordability and cost reduction has to be become central to water policy reform. The participants also expressed concern that the degree of corruption tremendously jeopardises the principle of water access to citizens in institutional decision-making. It has reduced institutional capacity to benefit the citizens. It has indeed undermined the rules of the law and, as a consequence, has deprived households of their water rights (which they are granted under the aim to create equal access to water). Therefore, corruption affects water governance, and defines who will access water facilities and at what cost. The costs are, therefore, disproportionately borne by poor households. In this regard, the analysis indicates that 38% of those interviewed expressed that they had contributed, in one way or another, a small proportion of money to apply for a water permit and have obtained few licences. 46% of participants also expressed different opinion that in the last 10 months, in 2012, they have been constrained by NWASCO staff to effectively collaborate with the institution to access water permits. With diverse members of the institution involved, citizens were left with no proper vision in terms of who really was in charge of the application for and the issuing of water permits. In this context, the absence of a coherent framework for dealing with current corruption in the water sector was heavily emphasised during the field interview. The framework has to indicate the measures needed to curb corruption in the Zambezi rural basin water sector and participants indicated that, among the measures to be implemented, deterrence is very important because it effectively deals with corruption. The method of deterrence will increase the penalty and punishment given to institutions or those citizens involved in promoting corruption, and these can be in the form of economic fines, or other any type of fines. It should also be reflected in the vigorous enforcement and implementation of water laws and regulation. Other measures should include creating an enabling environment

which allows for the creation of a collaborative network between agencies; the changes made to the Water Act of 1994 did not link various agencies or institutions in the water sector over the issue of water management. The legal framework also has to be reformed to reduce complexity in regulatory methods, licensing, and control elements of the reforms.

Within the water institutions, regardless of their natures and power to influence water sector activities, variations in terms of institutional structures and the mechanisms of governance have helped to increase corruption. Public institutions can be very useful in terms of water regulation but they are not immune to corruption. However, participants also indicated that the absence of effective measures against corruption in the water sector was not emphasised in the Water Act of 1994. A mechanism to implement the monitoring, auditing, and management of water to protect against corruption is lacking, and it has led to institutional failure in granting equal water access to all citizens. This has been compounded by the inability of citizens to gain access to all stages of policy planning, and the implementation cycle. A study by the World Bank (2010, p.35) specify that water institutions in developing countries have no control over corruption in the water sector, and the ineffective control of corruption has constrained the implementation of water policies for water supply. The World Bank report also indicated that the best way to understand the concept of corruption is to ensure that institutions record any instances of corruption in order to define the best strategies for dealing with it. Institutions have to understand that corruption is equal to monopoly plus discretions minus transparency. This means that institutions that have allowed a lower level of economic competition and permitted a higher degree of discretion will tend to experience high corruption, while institutions that facilitate an environment of transparency in the context of political and economic exchanges, and wish to empower citizens by taking their ideas against corruption into account, have low levels of corruption or wipe it out. However, the argument of this study is that if the analysis is taken into consideration, it will help to established specific strategies to remove the identified obstacles facing poor people in accessing water services. This confirms the findings of studies by Howe and Goemans (2003, p.21) and Cernea (1987) which indicate that, with the current water policies observed in different countries, governments have an obligation to shift

their policies based on policy change to stimulate service provision for the poor people. The issue of corruption was highlighted by citizens as one of the key constraints to the affordability of water; unless this is addressed, the water sector will remain vulnerable and the institutional environment will not be able to ensure that all citizens have access to affordable water. The next section will analyse the citizens' perceptions regarding the other institutions involved in water sector management.

6.3.6 DO CITIZENS HAVE OTHER INSTITUTIONS IN WATER SECTOR MANAGEMENT, APART FROM THE TWO INSTITUTIONS DISCUSSED ABOVE?

The literature review on institutions in chapter 2 indicates that there are diverse players in water sector management. However, based on the empirical data, it appears that nongovernmental organisations (NGOs) have a presence in the management of the water sector in the Zambezi rural basin district, but in other parts of the province, their presence is very limited and sometimes non-existent. However, NGOs have been recognised as having wider experience in the delivery of water and sanitation facilities sector to rural communities. Previously, when water supply facilities were being introduced, NGOs supported the process of maintenance, before leaving for other areas to pursue their own interests. This has left the entire process of maintaining water facilities in a state of disarray. However, when they used to operate in the district, their presence helped the rural population to improve water technology, as they were experienced in technological application. It is important for the state to ensure that an enabling environment is created so that NGOs are able to return, and their presence will provide people with a direct source of experience in the water sector, specifically pertaining to technical capacity, and social and health water related issues. In the context of the Zambezi rural basin, it is important to strengthen the Village Water Committee so that it can gain experience from other NGOs operating in different areas in order to understand how water services are delivered to support the overall implementation of policy in the water sector in the Zambezi rural basin. In their study, Marin *et al.* (2010) specify that NGOs are important, and have played a major role in the water

sector in recent decades because they have helped poor communities across developing countries to develop basic water infrastructures; however, their success is not yet well evaluated in terms of water delivery. However, although NGOs are essential to water sector development, participants indicated that NGOs significantly influence policies in the water sector in terms of water project implementation and this has permitted the state to have a distant relationship with NGOs. Therefore, the state has focused on reducing the influence of NGOs on water policy development. When participants evaluated their NGO experiences, they emphasised that NGOs provided good quality water when the state was not able to provide such quality in those areas. Participants also indicated that the relationship between international nongovernmental organisations (INGOs) and locally established NGOs is not yet well-established, despite certain key areas where they have forged relationships specifically to achieve certain objectives in the water sector. For instance, a relationship has been forged in the area of water infrastructure, but not in the area of joint project design and implementation. This shows that the INGOs and local NGOs have different water agendas and visions towards the strengthening institutional capability in the water sector. Participants indicated that it is important that INGOs and locally established NGOs build relationships that allow networking and collaborative efforts in order to implement water projects. Based on this network of collaborative effort, participants said that partnership with INGOs would strengthen institutional development and performance in delivering water sector activities. Participants also emphasised that the central issue for NGOs and donors organisation supporting structures is to determine whether NGOs have the capacity to provide the needed funds for the water projects being implemented. Participants noted that NGOs, both international and local, have a tendency to believe that the success of their projects is determined in terms of whether they are able to succeed in attaining objectives, rather than determining whether they have achieved tangibles benefits in terms of cost of implementing water sector activities.

In other perspective, participants indicated that private sector could play an important role in ensuring that the maintenance of water points is sustained. Private sector has to work with the local communities because it has the capacity, knowledge and technical know-how addressing the challenges faced

by the water sector. When asked why they need private sector involvement in the water sector? They said that government is not able to ensure that the sustainability of water points is achieved in the long run because of tight budget which constraints the government to allocate resources efficiently to water sector.

6.3.7 WHAT ARE THE KEY LESSONS LEARNED WITHIN THE INSTITUTIONAL FRAMEWORK?

The findings highlight that although a water institution in the Zambezi rural basin remains an agent of the state, institutions are either constrained financially or technically with regards to their operations in the water sector. The findings reveal that neither technical assistance nor financial assistance is provided to these institutions to support water suppliers, which has made institutions in the water sector fail to maintain water facilities in the long term. The maintenance of water sector facilities was identified as ineffective, and in some situations as non-existent, at all levels of water supply. Even though institutions in the water sector appear to be motivated to implement water reforms, weak institutions are the principal cause of many failed implementations of water activities in the Zambezi rural basin. However, participants indicated that, "… *technical sustainability depends on institutions that are sustainable; therefore, institutional maintenance remains vital to the overall improvement of water sector…"* (Members of households AD, AB, AH; Members A, B, D; Institution A). However, the review of the findings reveals that institutional support is inadequate in terms of complementary efforts between the Village Water Committee and the NWASCO. Institutional monitoring is also lacking, and the capacity of institutions in the water sector at a rural community level is inadequate and remains a major constraint. Furthermore, although NGOs have an important role to play, their capacity and sustainability towards the water sector remains questionable. The reliance on NGOs and their external finance mechanisms to fund activities in the water sector (such as boreholes, water wells etc.) could slowly dilute water sustainability. Furthermore, institutions and NGOs are equally reluctant to work together to confront the realities of the water sector. What is needed is assistance to help institutions become self-financing to maintain activities in the water sector in the Zambezi rural basin. However,

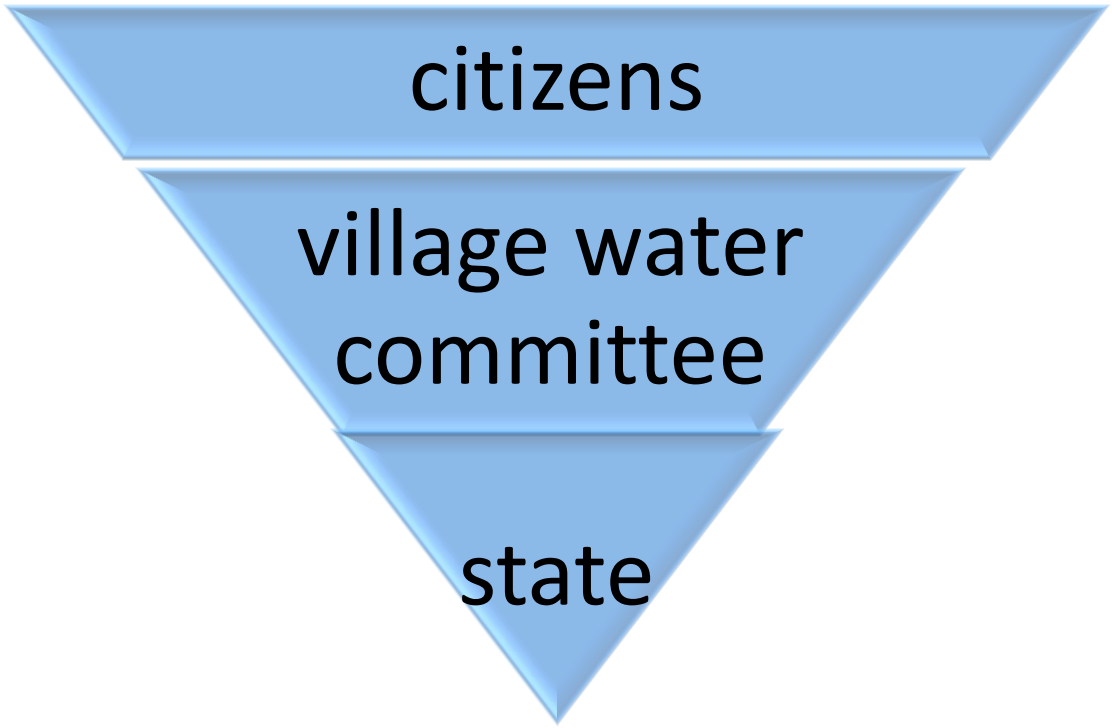
the challenge to water institutions in reforming the water sector is that institutions are not integrated in a way that allows them to effectively reform the sector. In the Zambezi rural basin, the absence of clear institutional authority within the water sector constrains the development of water sector activities. The lack of responsiveness from institutions to adapt to the rural community in the Zambezi rural basin is due to the fact that they still reflect the characteristics of old management systems in the water sector. Institutional changes in the Zambezi rural basin are driven by political agenda; however, they are also a consequence of the lack of institutional legitimacy at the regulatory level. However, institutions have not yet prioritised dealing with water problems through the promotion of good water infrastructure in the area. In this regard, households' access to water infrastructure has become very limited. In such a fragile institutional arrangement, other lessons could also be drawn for water institutions or agencies in the Zambezi rural basin. Firstly, institutions have to adopt policies that promote access to water infrastructure services; otherwise, these institutions will lack credibility from the citizen's perspective. Secondly, citizens or households need to see useful progress in the water sector. Thirdly, regulatory systems (to address tariffs, water quality, and household citizens' complaints) need to be completed. In the present situation, neither water quality nor tariffs have yet been accomplished. Household complaints have been partly dealt with, but there are still some challenges in terms of the time required to deal with an individual household complaint and, in some specific cases, the processing of complaints takes time to yield results, which results in households abandoning the process or forgetting about the complaint.

Consequently, institutional reforms have not yet met citizens' expectations when it comes to reforming the water sector, particularly when it comes to water supply accessibility. When regulation was introduced and being implemented, institutions were unable to promote water coverage adequately in order to increase rural water expansion and, consequently, institutions were unable to gain the rural households' attention and this led to the ineffective completion of the regulatory framework, which neglects the rural water sector in the Zambezi rural basin. In attempt to resolve the problem, participants expressed the view that it is necessary for the institutions involved to revise the current regulatory framework in order to provide universal access to water, regardless of where

citizens live. Furthermore, the analysis of the findings highlights that the institutional legacy of the water reform process excludes the essential mechanism of balancing the integration of institutional expectations and rural realities raises the question to whether would provide answer to the water sector problems.

However, it is also necessary to indicate that within the institutional framework, the issue of separating the policy-making process from policy implementation has separated the technical staff working within institutions to effectively promote consistency and predict the way regulation is shaped and implemented from the realities on the ground. Participants indicated that, in order to reform institutions in a sustainable way, the reform process has to look at two key areas: social structure and formal organisation. These two areas remain unaddressed in the water sector or even during the water reform process. In the context of social structure, participants stated that, "…when community members in the Zambezi rural basin have been completely excluded from playing a key role in the policy structure of institutions [at certain points]… the social order will be likely destabilised because the inclusion of community members will open up opportunity for institutional changes"(Members A, C, H; Institution B). However, reflective accounts from participants indicate that the expectations of citizens are very difficult to manage when institutions have promised to improve the water sector but nothing has happened as yet to meet expectations. Furthermore, the inability of institutions to focus on rural areas is an indication of the need for institutional change in the Zambezi rural basin. Regarding formal organisations, the established institutions are unable to effectively engage the households affected in serious dialogue in order to manage the water sector and a new shift in the direction is needed. The Zambezi rural basin case indicates that water sector institutions or agencies have an essential role to play in promoting the universal accessibility of clean drinking water to citizens, but it also illustrates how these institutions are fractured in terms of their relationships at all levels of operation, which has significantly contributed to institutional failure in the study area. In order to deal with institutional failures, it is important to inverse the pyramid of support for the water sector (as illustrated in figure 4 below).

Figure 4: Inversion of institutional support in the water sector



Source: Data analysis.

In this inverse pyramid, citizens have to be considered in terms of institutional support, for instance, citizens have to be part of the overall water strategy implementation activities and be given greater power to define the destiny of the water sector. Viable institutions such as the Village Water Committee has to be deemed fit to spearhead policy reforms in the Zambezi rural basin in order to meet water supply requirements. The Village Water Committee has to become responsible for providing water service provision. The NWASCO, or any other named institution, has to provide technical support in the form of training and checking the quality of water in order to ensure that the water is safe to drink and that it meets the quality standards put in place. The state should provide policy guidance, finance both institutions and ensure standards are met. However, it is important to note that when using this inverse pyramid, a consultation process has to be established between and among the three layers of the pyramid for effective water service provision. Institutional support has to be centred on households in terms of the policies and projects to be implemented. When institutions focus on households, there is possibility that accessibility to water will be attained. The relative size of the household pyramid layer shows that, that is where a large population needs both institutional and

state support. Within the same pyramid, the Village Water Committee layer indicates that its roles and responsibilities are to define and provide the capacity needed to implement key policies to provide water supply provision and water supply facilities. The state has to limit its own influence and provide the necessary support directly to rural locally established institutions in order to promote collaborative efforts and strengthen the water sector. The study indicates that within the current institutional framework, the state has complete involvement in the regulation of the water sector and this has kept institutions from properly playing their roles in the delivery of water service provision. The finding of the study also indicates that governments have to change the way they operate and implement policies, and the new ways of improvement the water supply for the rural areas is to give citizens freedom to manage their water supply.

6.4 CHAPTER SUMMARY

This chapter has examined institutions in the water sector, specifically the NWASCO and the Village Water Committee in the context of the Zambezi basin. It has also looked at how these two institutions were created, and where they draw their legitimacy from. It has evaluated each institution in relation to its performance and what we consider successes and failures. It has also examined how citizens feel about the affordability of water and costs in the water sector. However, regarding the process of institution creation, the Zambezi basin is partly adapting to new ways of water management, as citizens believe that the presence of institutions could help support the entire water sector service delivery, particularly, when these institutions become fully independent. This transformation of ideas is very important, as it will help citizens to contribute to the water sector. The affordability of water was also highlighted as an important issue as citizens believed that water has to be affordable in order for it to be accessible.

This chapter indicates that these two institutions were created with different purposes, and that the sources of their legitimacy differ. They have reached different levels of achievement, and the Village Water Committee is not yet recognised within the overall institutional framework compared to the NWASCO.

The regulatory system for rural areas has to be developed in order to fill the gap identified during the course of this study, so that the water sector is properly regulated. However, international as well as locally established NGOs also have an essential role to play in the implementation of policies in the water sector. However, NGOs have diverse visions, and the relationship between international NGOs and locally sourced NGOs is not yet strong enough, and action is required on this front. The next chapter will discuss water policy in order to analyse how the water policy framework has been framed in the context of the Zambezi rural basin.

CHAPTER 7: WATER POLICY FRAMEWORK

In chapter 6, the institutions in the water sector, how they operate and how they have performed were explored. This chapter focuses on the water policy framework of the water sector, considering its adequacy, legality and the institutional regulatory framework in rural communities. The legal framework determines how the water sector is to be governed in order to ensure its effectiveness, and 'adequacy' implies that water policy has to be adequate in relation to the water sector. As mentioned in chapter 2, Saleth and Dinar (2004) and Biswas (2001; 1994) have strongly emphasised that water policy is needed to ensure the effective delivery of water. They explain that policy has directed implementation to achieve effective water management. With the declines observed in the water sector's natural resources, the effectiveness of water supply will depend on how effectively water policies have enabled the implementation of the sector's activities.

The policies are principally based on the constructed institutional framework regarding their formulations and how they are implemented. It is necessary to understand how these policies have been implemented in the past, and understand the nature of the emerging realities in the current policy context as they are critical in relation to the water challenges faced in the 21st Century. This is because of an increased imbalance between water demand and supply, which has made it difficult to meet household's water supply needs. Biswas (2001) has explained that water policy has a prominent role to play in strengthening the capacity of the institutions managing the water sector, and also needs to enable improvements to water supply. The main question is this: to what extent does water policy have to succeed in the water sector? The success would entail that the supply of water is fairly distributed and accessible to all households in the Zambezi rural basin It has been noted that when policy is absent, institutions in the water sector lack a support framework which could help them solve the current issues facing the sector globally. However, these concerns are the results of ineffective, mismanaged, and inappropriate policies. Despite concerns, there are opportunities for the problems with the water sector

to be addressed within the context of national policy and the key legal institutions associated with it.

The information in this chapter was principally collected from all three participants' categories. This chapter also intends to review the major trends observed since the inception of water policy reform, and identifies challenges which have directly or indirectly hampered to the process of water sector development at the institutional level. However, analysis saw a number of themes or categories arise from the study of reform to the water policy environment within the institutional framework. These themes or categories are explained in the following sections in order to understand the contextual configurations of their meanings.

7.1 **WATER POLICY REFORMS**

As indicated in chapter 2, water policy reform is the process through which institutions give direction during the process of policy implementation. It can be argued that water policy reform has to take into account the water supply constraints present at every level of society. A constraint could take the form of a lack of policy adaptability to the context in which it is applied, and policy reform has to consider how to make people central to its processes and implementation. People, in both rural and urban areas, are the ultimate beneficiaries of reforms. However, improving conditions such as of water supply and delivery systems at the households is of particular importance for the poor and vulnerable living in rural areas. In the rural context, people in general should benefit from reform processes. Water policy has to be adjusted in order to align the needs of poor people and the objective being pursued in order to understand how to increase the efficiency of water delivery at the local level. As indicated in chapter 4, institutions in the Zambezi basin have been involved in reforming the water sector; this is evident in the Water Act of 1994, which placed emphasis on the establishment of independent water agencies to improve the water sector in order to deliver water service provision throughout the country including the Zambezi rural basin. This demonstrates that water institutions in the Zambezi basin are involved in promoting water policy reform, but the main questions are at what level do these reforms operate and who will

benefit from them? The water reform process is meant to facilitate water sector activities by establishing and supporting a regulatory framework for water development at the national level. While participants explained that reforms in the water sector are advancing, policies and institutional processes are affected by a number of factors (including economic factors) which have influenced water demand, supply, and quality. Other participants also agreed that water acts and legislation should be designed and promulgated to deal with the challenges faced by the water sector. Participants specified that the water acts were meant to ensure the effectiveness of water management. With regard to the local level, no specific time frame for implementation was provided. Members of households emphasised that, despite the introduction of new policies, water acts did not consider the water rights of rural people. Moreover, the absence of water institutions in rural areas was raised as a cause for concern. As demonstrated in the review of water policy in chapter 2, water policy seems to assume that water legislation will be applied to a particular context. It is important to note that the perceptions and ideologies of water sector management fail to scrutinise the management of the water sector; management of the sector seems incoherent because it has not addressed the issue of water rights, which is mentioned within policy but not actually applied and strengthened. However, to emphasise the issue of water rights, the Chairman of the Village Water Committee pointed out that:

> Since the Water Act (1994) was put in place, an individual wanting to get water using the drainage system in his or her own property has first of all had to obtain a licence which authorises him or her to proceed with the drainage system….The only competent authority authorised to issue this licence under the current arrangement is the Department of Water Affairs rather than a rural water institution…. The application has become even more complex to implement, and is leaving water institutions behind in terms of reforming the sector' (Member A; Institution B).

Due to the inefficiency of the application of water licensing, the Ministry of Water Affairs had an applications backlog going back to 2007 in 2010; approximately 12,000 applications had been made to the ministry, but they were not fully processed until recently. Among the main reasons for the ineffectiveness of the ministry were an absence of capacity building and a lack of appropriately skilled staff members; trained staff members could have improved the administrative systems intended to resolve the applications backlog. While institutions

operating at the rural level are left out of the process of licence application and issuing, the National Water Supply and Sanitation Council (NWASCO) is involved; however, its mandate is very limited in terms of its ability to reinforce jurisdiction in places where other ministries are responsible for dealing with water issues. The Village Water Committee is totally left out of the process of issuing licences. A study by Bayliss and Mckinley (2007), carried out in Tanzania, indicates that the water rights of rural people are important and need to be addressed if policies are to succeed at strengthening the water sector. Mapanga(2003) emphasises how water rights should take into account the influence of customary laws, because if water sector rights are to be defined in relation to customary laws they will not necessarily permit poor people to access water through licensing applications. Mapanga also indicated that water rights have to be incorporated into a well-defined legal system in order to accommodate the customary aspect of the water rights of poor people; this will ensure that poor people are protected by legislation and policy frameworks. This is also reflected in a study by Lord and Israel (1996, p.22), as they specify that a number of developing countries have neglected to incorporate water users' rights into their water constitutions; this might have weakened policies and institutions and their ability to deliver specific outcomes. This finding is confirmed in studies by Water Aid Zambia (2009, p.20, 2012), which state that sustaining the water sector requires policies and institutions to support the process of reform. This will ensure that institutions are capable of implementing policies in line with the overall framework. However, these findings contradict a study by the World Water Council (2011, p.36) which shows that water policy reform in developing countries does not deal with new policies; instead, policy makers need to exercise their political power to implement effective water sector policies. Without this pressure, no success will be achieved in the future. Members of the Village Water Committee and households also indicated that, although various water policy acts were promulgated, the acts were silent on a number of issues which include the participation of the poor and the authorities' lack of interest in establishing water institutions at the rural level to help with policy implementation. This finding is consistent with studies by Africa Water Task Force (2002a, p.45) that highlight that the absence of citizen participation in the water sector in developing countries has contributed to the inability of

institutions to deliver water in a sustainable manner to rural areas. Contrary to this, a study by Kampala *et al* (2002) shows that a number of developing countries even though policy acts in these countries do, under some circumstances, recognise the needs of the general populace do not necessarily offer practical help to rural people. In this context, a practical approach means that people are included in all decision-making processes surrounding the adoption of policies. Other studies by Fredrickson (1992, p.35) illustrate that policies have failed to align people's needs with the requirements of the water sector in order to adopt a people-centred approach to water sector development.

7.1.1 THE POLICY AND LEGAL FRAMEWORK

In Zambia, the policy and legal framework is the most important document guiding the water sector in terms of water supply and sanitation. It aims to improve the living conditions of people by making sure that people have better access to water and sanitation facilities (as expressed by all three categories of participants). Participants explained that the regulatory framework for water resource management was important, as it laid down specific conditions to support the efficacy of institutions and the water sector. However, participants specified that the current regulatory framework does not include the right to water or provide for strong enforcement mechanisms to regulate the water sector and well-articulated institutional arrangements to help the operations of the water sector. Despite an agreement between water users and water operators, regulatory water infrastructure, financial arrangements, preparation for water legislation, ownership of water resources, citizen participation, and effective mechanisms are still needed. These elements are best viewed as essentials needed to govern the water sector and facilitate effective resource allocation. This is confirmed in a comparative study by the World Bank (2006, p.37) which features analysis of the different regulatory water frameworks in Mexico, South Africa, Vietnam, the Kingdom of Nepal, Senegal, Cameroon, and Morocco and shows that such elements are still in the early stages of development or, in some situations, have not even been identified or implemented. This is also evidenced in studies by Scott (1998, p.39; 1991) which regard diverse water legislations and acts as the best legal instruments

for providing policy makers with opportunities to capture the realities of ordinary people. However, in most legislation, policy makers often overlook this when revising or designing policies and introducing changes. The legal and regulatory framework has not yet contributed to narrowing the gap between urban and rural areas. This is evidenced in a study by Proag (2006) which emphasises that, for it to be effective, the regulatory legal framework must adapt to the requirements of water sustainability so that all the members of communities are well served. Biswas (2001, p.12; 1997) also stipulates that, although water problems are experienced nationwide in developing countries, the governments should ensure that sound water policies are developed and updated to strengthen the water sector. Other studies by Yarrow (1999) also confirm that enforcing policy within the regulatory framework provides better opportunities for institutions to speed up the process of water reform and ensures that water policy is effective in rural areas. This finding is confirmed by Nkhuwa and Daniel (2002), who state that water policy in many developing countries does not go far enough to address the failures of the regulatory and legal framework for water policy. This is because policy makers do not pay enough attention to the effectiveness of the entire process of water policy formulation and implementation. Besides this, the issues with the legal and regulatory framework mean it is not necessarily designed to enforce the issuing of water permits. The sentence above say that water policy needs a good legal and regulatory framework to be effective. Marsh and Yencken (2004, p.68) seem to be reaching the same conclusion (general conclusion is that water policy is weak when it comes to addressing the effectiveness of the legal and institutional regulatory framework in developing countries, and this could be due to the speed of policy implementation. Studies by Scott (1998), and Sivamohan and Scott (1994) show that although the government views water policy as the only means for guiding the water sector toward improvement, policy reform requires a new approach wherein the partnerships between all the stakeholders are strengthened. This is evidenced by the findings of this study, which found that both members of the Village Water Committee and households expressed the view that communities and households should have to take on responsibility for guiding the development of legal and regulatory framework guidelines in order to ensure water sector sustainability. They also stated that

the government water institutions have to play a facilitating role during discussion of the envisaged legal and regulatory framework in order to ensure rural people's needs are taken into account. The demand driven approach is promoted to ensure that households take decisions about the kinds of services they would like to access. A study by Hamstead, *et al.* (2008) emphasise that this will facilitate the formulation and implementation of water policy reform at the community level.

7.1.2 FACTORS HINDERING DECISION-MAKING IN THE WATER SECTOR

In the water sector, there are some specific factors which can obstruct the development of water sector policy reform. Grafton and Jiang (2010, p.23) indicate that various factors obstruct the process of water policy reform at the level of implementation. These factors are categorised in table 13, which shows the obstructions to the implementation of water policy in terms of water institutions' decision-making processes. The identified water policy constraints emerged from views expressed by all three categories of participants. These factors are situated at the institutional, political, strategic and planning levels, and their key areas have also been identified in table 13 below. These factors are viewed as important in allowing water institutions to make concrete decision for the operationalisation of water sector services. They have to be identified in order to improve the water sector implementation mechanisms at all levels of society, and particularly in the water sector framework for rural areas. The table 13below provides an explanation of the various water policy constraints at the various levels of policy implementation.

Table 13: Identification of factors obstructing water decision-making processes at the policy implementation level

The identified water policy constraints	**Key areas**
At the institutional level	Institutions lacking proper incentives, and the disintegration of water institutions.
At the political level	The degree of involvement of key

	stakeholders and inadequate interest from other water associations and groups.
At the strategic level	Institutional strategic goals and coordination mechanisms among key stakeholders are not clearly defined and are poorly articulated.
At the planning level	Planning lacks detailed guidelines and is not well integrated; consequently, plans cannot realistically be implemented.
Other constraints – budgetary limitations in the water sector	Currently not the budget is inadequate to meet the water sector's requirements.

Source: Field notes.

Table 13above shows that these participants provided the information included in the table above. These participants have indicated that the absence of a holistic policy approach to water management is at the core of the current policy failures in the water sector. This was reflected in the water sector interventions and strategies. In this context, a holistic policy approach means that the policy framework has to include all of people's concerns regarding the implementation of water resource management systems. Water policy lacks a new approach or innovative ideas which could help to redesign the entire water sector and adapt it to fit the current environmental context. For instance, members of the Village Water Committee and policy makers emphasised that the creation of policies to develop sustainable water supplies by the state should be the first stage in water sector reform. This view is backed up in studies by Chileshe *et al* 2005) and Merrey *et al (*2002) which indicate that water policy and strategy do not reflect continuity in terms of policy delivery and programme achievements; rather, they only reflect discontinuity. For instance, when there is a change in policy, either due to a particular political ideology or to accommodate a particular policy change, the policy change will be totally dependent on the

change in the political situation. The policy reform process consequently becomes highly ineffective, leading to difficulties with implementation. Participants said that policy interventions in rural areas were not properly planned because, in general, policy did not focus on long-term sustainability. Instead, it was based on short-term water management strategies, meaning rural areas are very unlikely to benefit. This finding is consistent with studies by the World Bank (2006, p.22) ; Merrey (2000) and Lungu and Harvey (2008) which indicate that short-term policies and their institutional implementation have constrained the development of the water sector in Morocco and parts of southern Africa (for instance, Zimbabwe). The analysis indicates that even though the afore-mentioned factors have contributed to the ineffectiveness of water policy, consideration should also be given to other contributing factors such as a lack of funding to implement institutional reforms, the low level of investment in rural water infrastructure and the absence of coordination between institutions.

Participants emphasised that all these constraints have a significant bearing on how water policy is being reformed and implemented. However, the interview results indicate that the critical challenges faced by institutions enacting the reform agenda are maintaining water quality and provision at the household level and strengthening institutions to effectively action policies. One respondent said that water reform has two dimensions: the first dimension is securing institutional rights, meaning that its role and functions are in-line with people's aspirations and the needs of the community; and the second dimension is ensuring the policy framework is designed to integrate both institutions and people in order to develop coherent policies for the whole of society. This is confirmed in studies by Scott and Meyer (1991) who shows that establishing institutional rights and aligning them with the needs of people presents a challenge. That is why many policies have failed to incorporate these two dimensions into the water policy framework. The field study reveals that, in relation to policy reform, institutional establishments are meant to regulate the water sector but not necessarily control water at the rural level, and this has negatively affected the water supply and consequently there was very limited water supply at the household level.

Participants also indicated that, despite water being an important natural resource, a great deal of focus has instead been afforded to sectors such as energy, the environment and education, because these sectors are priorities for the state. This has meant that the water sector has lacked funding and capacity building; as members of the Village Water Committee have stated, funding to the water sector covers only 0.2 per cent of the total government budget, less than other sectors such as energy and the environment. If the water sector's budget is very limited, the new approaches needed for the water sector and its policies will not be effectively implemented and, consequently, the water sector will not be changed as prescribed in the Water Act. One participant pointed out that:

> Failure by the state to increase the budget has consequently unbalanced how water activities should be prioritised in both urban and rural areas … this has also contributed to the decline of water services in rural areas (Member of household AB)**.**

One key problem with the country is that despite commitment by the government to increase rural access to clean and safe drinking water, the provision of water is constrained by budget allocation to water sector If the state indicated how much of the budget was allocated to both sanitation and water supply collectively, that would be a first step that could help to improve sustainability, efficiency, and the equity of budgetary expenditure in the water sector. This is not currently being addressed within the wider context of the policy framework. This is supported by studies by Akhmouch (2012, p.67) which show that the sustainability of rural water supplies is limited in a number of countries because the states' budgetary constraints keep them from increasing the budget for water-related activities.

Studies by Kampala *et al* (2002) have shown that developing countries' water supply and sanitation sectors have been supported by funding from donors for a long time, and that this has made states overlook allocating funds themselves. Consequently, states have shifted financing from the water sector onto other sectors. The interviews indicate that it is necessary for the government to balance its funding with funding from various donors, such as Water Aid Zambia, Oxfam, Care International and others, so that a coordinated approach

can be developed and maintained to increase the budget allocated to the water sector. This would ensure that key planned activities are realised and that the best outcomes are obtained. In a study by Abernethy (1996), it is evidenced that institutions will facilitate the shift to implement water policy in order to improve the well-being of the people. Institutions will also create opportunities to develop effective mechanisms and delivery systems which could strengthen and contribute to water sector growth. Analysis of the interviews also indicates that the absence of coordinated approaches to water policy has predisposed the state toward water aid programmes, because donors are then responsible for distributing funds and controlling project implementation. Unless both parties are involved, the water sector cannot be improved. Water aid from donors has led to the government not paying enough attention to supply and demand in the water sector in rural areas. This has caused the government to neglect the water sector in rural areas and leave it to nongovernmental organisations (NGOs) to manage. This is confirmed in a study by Sampath and Young (1990) which indicate that coordination and citizen participation are central to effective water management programmes and projects, whatever the environment in question. This indicates that although water aid has been available due to the collaborative efforts of donors, such as the United States Agency for International Development (USAID), Water Aid, and the Canadian International Development Agency (CIDA), the policy of leaving the management of the water sector to other stakeholders (and, in particular, donor agencies) has been perceived as a failure of the state. This is argued in a study by Bakkers *et al.* (1999, p.20) on institutional governance failure, which highlights the donor contributions to the water sector in developing countries. Though countries have taken advantage of donors' support for the water sector, they have ignored to implement policies that could lead to water coverage of the rural communities and this remains a prominent issue from the perspective of policy institutions.

7.1.3 HOW COULD THE LEGAL AND REGULATORY POLICY FRAMEWORK BE STRENGTHENED?

Strengthening the legal and regulatory framework is important for the advancement of the water sector. The question is how the legal and regulatory could be strengthened in order to improve the regulatory systems for the water

sector and ensure water supply needs are met? In this context, participants emphasised that the current policy and regulatory framework is poorly defined, which has led to poor water planning and, consequently, inadequate regulatory systems. This means that water operators are not properly regulated. There is a need to amend the Water Act in order to deal with the inadequacies of policy and make all institutions autonomous, thereby ensuring the smooth operation and management of the water sector. Another key issue that was raised was the need to balance the Water Act and link it to the realities of the rural water supply–demand scenario to allow for effective management. This finding is confirmed in studies by Kampala *et al.* (2002) which argue that institutions in the water sector have to be enhanced in order to ensure that they all play critical roles in delivering water management policies at the rural level.

Furthermore, members of the Village Water Committee and households indicated that, for the legal and regulatory framework to be effective, it is important that customary laws are also considered within the water policy framework. This is because water hasn't yet reached all citizens in the rural areas of the Zambezi basin, and the issue of local law towards the management of water sector remains important to water sector policy reform because it allows citizens to access water all of the time. In the present status of local customary laws are not linked to the water policy and institutions. The major traditional sources of local water are not protected by water policy, for instance, wells, streams, and rivers.

These sources of water remain exposed to environmental effects and consequently water quality becomes deteriorated. Citizens in the Zambezi basin have, in one way or another, access to this natural water supply but the key problem is that water is fetched from a long distance. The need to bring water near the households has to be emphasised as one of the key determinant in addressing the water sector problems. Policy has to focus on how to improve the natural sources of water in order to improve its quality through the use of technologies. In this context, strengthening local water rules taking in account the customary needs of the rural local community in the Zambezi rural basin is important if water policy has to attain its objective, particularly ground water, is not easy to maintain. Ground water is reached through various means; for

instance, digging wells. It is not clear whether water which runs underground is public or private property. In the Zambezi basin, having a private well incurs many expenses and can cost between 760 USD and 1245 USD annually. This is beyond the means of most citizens in terms of their incomes. Citizens who can install their own wells have the right to charge people who use them. The price will be high because costs are determined privately and go unregulated. If there are more wells the market would be competitive and the cost of water would go down which is not the case in the Zambezi rural basin The enforcement of customary laws normally depends on the cultural context of the part of the Zambezi basin being considered; laws are generally enforced in areas where the community is homogeneous.

Most citizens also emphasised that they have recognised the serious inadequacies of most traditional sources of water, and have expressed a desire to help determine water policy, particularly policies relating to water supply and sanitation. The complaints generally cover the quality of the water citizens have to drink in terms of its taste, smell, and content. These issues have to be addressed within the policy framework in order to improve the quality of water. This finding is consistent with the findings of a study by Mapanga (2003), carried out in Tanzania, in which customary law was emphasised as being crucial to the success of water policy in the rural context. Policy makers also indicated that, even though a customary law is necessary in order for water policy to be effectively implemented, a transitional period has to be established to link water policy, legislation, the regulatory framework and the water sector to support the effectiveness of the institutional framework as a whole. In this context, water policy will shape how legal and regulatory instruments are implemented.

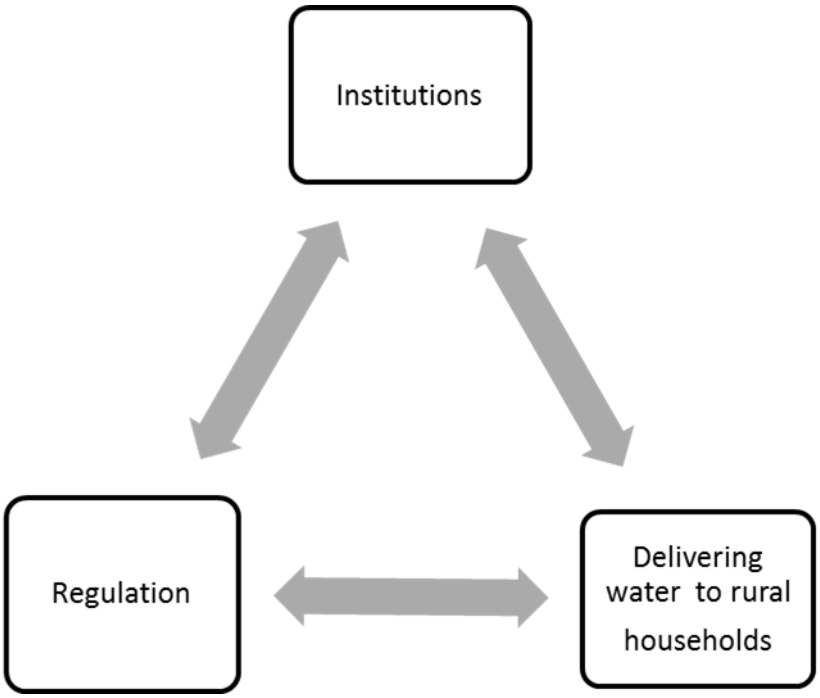
The Water Act permits the creation of a regulatory framework that will help to improve the water sector’s performance in terms of service delivery. The legal aspects will bind institutions implementing policy reforms to obey the ‘rules of the game' and operate according to the conditions set out in the agreed policy in order to deliver water service provision. In the present water policy act, this link is not yet recognised; as a result, policies have yet to be implemented. This finding is consistent with the findings of a study by Sampath and Young(1990,

p.25), which found that a lack of the effective relationship with key policy components such as water law, water policy and water organisation as explained in Saleth and Dinar(2004) study has contributed to the reduction of water supply allocation broadly. For instance, the absence of coherent relation among these key elements (water policy, water law and water organisation) has not yet provided opportunity for people to strengthen their water rights in rural areas where the supply of water is mostly needed. This was confirmed by one participant who stated that:

> The major problems with the e water sector are the inability of current institutions to the strengths the l essential elements of the water policy framework. This has led to the process of water policy being disjointed and dysfunctional, therefore contributing to the lack of institutional capacity to develop a supply- demand strategy to meet the needs of the rural populations. In the case of Zambezi rural basin, the absence of coherent institutional mechanism, in relation to the integration of all components of the policy itself with other elements, has led to the present trends in the supply of water to the poor'(Members D, C, D, E; Institution B; Members of households B, A, C, H).

The relationship between these three key elements is significant because, if recognised, it will help to make water sector policy reform happen. The interlinking policy issues defined within the general policy framework have to be considered when implementing water policy reforms. The field study revealed that a transitory policy strategy phase is required to ensure that the critical elements of the water sector fit within the 'water policy triangle' (see figure 7 below); in addition, policy regulation and the delivery process must provide links between the elements. This will permit a sound regulatory framework to be reinforced with the ultimate aim being to strengthen the regulatory agencies, NWASCO and the Village Water Committee. For this to be achieved, all three categories of participants felt that it is necessary to establish a framework consisting of relationships between water policy, regulation and delivery systems; this should be put in place in order to ensure effective water delivery is attained, as indicated in figure7 below:

Figure 7: Water policy–regulatory–delivery triangle to address regulatory framework challenges [13]



This is called the water policy triangle because it provides a foundation which water policy should operate in accordance to; it could help institutions to implement policy effectively by taking into consideration how regulatory work is carried out and how it helps to deliver water services within the water policy framework. Participants specified that if the water policy triangle is to be effective, it should be measured in terms of its regulatory framework as well as the effect policy delivery has on water services in the Zambezi rural basin region. The study findings also indicate that the water policy triangle has to take into consideration the relationships between these three elements (institutional, regulatory and delivery) to promote effective water management. Within this triangle, institutions have a prominent role to play because they are at the

[13] The researcher's policy triangle is highlighted as part of the general framework to demonstrate the links between policy regulation and delivery of the water sector reform programme. The interdependency of these three key factors has to be strengthened to meet future water challenges. The water policy regulation triangle has to be promoted within a clearly determined water agenda where the needs of rural people are taken into account. It can be applied to any country to evaluate institutional efficiency and effectiveness within the water sector. In its present state, the water framework in the Zambezi rural basin in Zambia lacks the interconnectivity between the three key factors represented in figure 7 above. The application of the policy triangle will contribute to the strengthening of the regulatory framework and improve policy delivery mechanisms to achieve water provision. The roles of the institutions will be linked to all three components of the triangle in order to implement reforms.

forefront of policy implementation in terms of service delivery. If institutions do not implement water policy for regulatory systems in order to achieve water service delivery, then water policy will produce negative effects in the water sector, such as ineffective regulatory systems. Participants expressed the view that the water sector requires a strong framework in order to ensure that the regulatory framework is fit to accomplish its functions. A strong framework has to have these elements embedded within it in order to provide an enabling environment in which institutions can operate. In addition, policy should improve the effectiveness of the institutional legal and regulatory framework in terms of its regulatory enforcement mechanisms. It should also provide opportunities to service users to acquire water permits to stimulate infrastructure development in rural areas.

This finding is confirmed by Kerr (2002) who points out that the integration of water policy, its regulatory framework and the process of policy delivery are all areas which policy makers have failed to tackle in their management of the water sector. However, the policy triangle has to be interfaced with its three proposed components in order to allow for the development of a more coherent approach to integrating these three key elements across all levels of policy. This is because the implementation of water policy was previously considered to take place after the country made a policy decision; this had the effect of making people view the implementation of policy as a separate activity which happened during the reform of the water sector (World Bank, 2010, p.13). With this kind of arrangement, policy implementation was seen as effective but it was not truly effective and this created many problems in the water sector, such as poor water quality and other related issues. From this perspective, the delivery of water sector regulation systems in the context of policy and regulatory mechanisms has to be linked to two other components so that the process of policy implementation can be better understood in terms of service delivery and the requirements of the institutions in charge of water. The application of the water policy triangle has to support the water policy framework and improve the delivery of water sector services at the rural level. These three critical elements (policy, regulation and delivery) have to be interlinked to provide a policy direction to boost the effectiveness of institutions operating in the water sector. However, the findings show that research on policies focuses on the content of

the policies and neglects other actors (for example, households), the context of the policies' application and the processes bound up with them. Institutions in the water sector have to consider the different elements in the policy triangle in order to permit effective interactions capable of shaping policy making decisions. The policy triangle has to take into account that as the number of actors (for example, households, water users, policy makers, and private sector providers) has expanded, so has interest in the network of the policy triangle. The network is defined as a cluster of actors interconnected because they are either closely or loosely connected and have an interest in taking collective action in the water sector. Consideration of the policy triangle could be instrumental in making a policy effective

The review of policy and institutional framework literature in chapter 2 demonstrates that this gap in policy can be linked to the regulatory system because of the fragmentation of the water sector. This finding is confirmed by Wester *et al.* (2003, p.34), who indicate that the relationships between the different composite elements of the water sector institutional framework have provided ways for each institution to play its role in the overall implementation of the framework. However, water policy has to be well balanced because policy shapes the kind of regulatory system to be adopted; therefore, the regulatory system provides systematic guidelines on the processes of water provision mechanisms within institutions. This view was also mentioned in a study by Yencken (2004, p.25) where it is stated that the policy shifts should be recognised by institutions in the policy reform process, and in particular by those who work actively to develop the water sector and water policy processes and planning by improving the process of legislative reform and institutional development in relation to policy implementation. This is meant to ensure that policy is clearly set out in order to guide the entire process of managing and improving water services in rural areas. Analysis of the field interviews indicates that the application of the policy triangle to the water sector will develop a better link between institutions and policy makers in relation to the implementation of reforming policies. A study by Adger (2003, p.20) emphasises that challenges, such as the accessibility of water for the poor, strengthening institutional framework roles, and increasing the affordability of water, should be addressed. This would help the development and regulation of the water sector and, in turn,

achieve better management of institutions. This suggests that future studies linked to water institutions or policies could use the policy triangle model in order to analyse the effectiveness of institutions towards the water supply. However, the main argument is that the regulatory framework for the water sector does not provide a comprehensive framework which deals with the challenges constraining institutions. In this regard, the identified policy triangle sustains the water institutional framework, therefore contributing to the delivery of water services and policy in rural areas. However, if a water policy does not achieve its intended goals then the problem should not be attributed to the policy but to its implementation, as policy implementation is often obstructed by a lack of resources and support from bureaucratic institutions.

The review of the literature on policy and institutions also highlighted that there are still debates among scholars about whether the concepts of 'policy' and 'institutions' are merely descriptive, whether they have exploratory value, whether they are only concepts for developed countries or whether they have legitimacy in developing countries. However, the policy triangle does not merely provide a new analytical perspective but instead aims to help the water sector change the policy environment in favour of the implementation of effective water regulatory systems in collaboration with actors. The review of the literature also indicates that there are only a few empirical studies on policy for the water sector in developing countries, and suggested that these have highlighted how policy can serve to reform the water sector (Saleth and Dinar, 2004; Anand, 2010; Bandaragoda, 2000). However, the absence of interconnectivity in the regulatory framework between policy and other actors remains an area for further investigation. The policy triangle can be used to address some of the key challenges facing the water sector in rural areas of developing countries because it reflects the phenomena of shared policy implementation value and the sharing of water resources to achieve water supply in rural areas.

7.1.4 WHAT ARE THE LIKELY WATER POLICY CHALLENGES FOR THE RURAL WATER SUPPLY?

Despite the area having enough water from the Zambezi River, policies and institutions concerned with the Zambezi rural basin face challenges to provide

continued support through the reform process to guarantee the provision of water supplies. However, those interviewed expressed the view that the inadequacy of the legal and institutional policy framework has had a negative impact on the water supply mechanisms in terms of permitting rural people to have access to proper regulatory systems for water management and ownership. This inadequacy emerged from the currently observed no clarification of institutional roles and responsibilities among the institutions involved in the water sector in terms of implementing policy. This has made institutions implement policies which are in their own interests, rather than in the interests of the communities they claim to be serving. In the current water policy structure, there is also the issue of legal status; this has been identified as an issue which affects the provision of water. The legal status issue mainly concerns institutions which have no responsibility to implement policy reforms at the level of village water committee and water users associations. This has meant these institutions have been unable to seek funding from donors, because they have no legal recognition to obtain funding. Water users' associations and the village water committee are seen as operating on a voluntary basis; therefore, donors have no interest in supporting them. The absence of a legal status means these institutions lack a clear direction and do not know what to do regarding the water sector and reforming it; this has created major problems around institutional planning and coordination for the water sector.

This finding is confirmed in a study by Bandaragoda and Firdousi (1992) which indicated that water policies in developing countries forget about locally initiated institutions; this is particularly true of rural areas, and has led to institutions not performing their roles as envisaged. These institutions, if well supported with the necessary legal and institutional recognition to implement water activities, will be able to supplement efforts by the countries to supply water to rural areas. However, the main questions are: how can the processes of institutions be recognised? And who will initiate their recognition, and how? These questions need particular attention to make it possible to deal with the challenges faced by the water sector. It has been concluded that a regulatory system which supports institutions by providing the necessary flexibility for permit schemes to small water providers in rural areas is not yet fully operational, meaning many

households still lack access to water sector services. It was also pointed out that institutions have also had difficulties improving water sector services and creating enabling conditions that would allow for the development of water schemes which would allow poor households to have their own water connections. For instance, one senior officer from the village water committee expressed the view that:

> Between 2002 and 2007, only wealthy households were connected but the challenge is that there are no established mechanisms for the maintenance of these connection facilities. They also said that on the side of poor people, the connection has not been successful because of the fact that poor households are not yet connected to water supply' (Member B; Institution B).

He also indicated that, since that period, the situation of water supply connections for particularly poor households has remained the same; improvements have yet to been seen in the Zambezi area. The status of water connection in the Zambezi basin is illustrated in table 14 below:

Table 14**:** Status of households connected to water in the Zambezi rural basin

Number of households connected to a water supply	Wealthy people[14]	Non-wealthy people[15]
	553	2

Source: Field notes (2013).

The table 14 above shows differences in terms of the water connection status of different household types. It is noted that wealthy households are more likely to be connected to water than households without the financial means to get connected. Members of the village water committee pointed out that:

> Since the committee was established, we have been trying as volunteers to pursue the state and other institutions involved so that water connection can become part of the institution's activities in the rural area. We composed a committee, and we wrote to the provincial district of Zambezi rural basin about the status of water and particularly on the issue of water connection. This effort has never yielded no tangible results, and no meeting has ever taken place (Members B, C, D; Institution B).

[14] Wealthy households are those households with the meaning to sustain a supply of water in terms of connection. Their assets are sufficient to sustain the operation of a water supply facility.
[15] Non-wealthy households are those households without the means to sustain a supply of water in terms of a connection. Their assets are limited and cannot help them to pay for a water connection.

At the policy level, water connection policy is not effective, because it has created an imbalance for the citizens trying to connect to a water supply. This demonstrates that, within the current policy structure, there is no system or mechanism in place to improve water resources management; indeed, there is no system in place to allow people willing to take charge of the situation to deal with the water challenges experienced at the community level, particularly challenges surrounding water connection, which is vitally important to water supply. The lack of policy in these areas has constrained the water sector in various ways. The people of Zambezi also expressed the view that current water policy has no provision which allows citizens to have a say over how water permits can be secured, which would allow them to improve connection systems. This is evidenced by members of the households who stated that:

> When people want to register their water associations, the process seems too complex in terms of permitting poor people to register their water associations to manage water sector activities. In this context, registration has not yet been part of the water policy reform process, because it is absent in the water policy act (Members of households AC, AB, AC).

This raises the issue of water rights in terms of permit accessibility for citizens and the registration of water users' associations, which have remained critical policy areas which need strengthening. Reinforcement is needed to make it easier for citizens to obtain permits, meaning that 'red tape' needs to be removed and processes made more flexible. It is critical that citizens are permitted access to water in areas which are poorly served by institutions, and the absence of mechanisms to reinforce water rights in these poor areas is a matter of concern in relation to reform of the water sector. Participants also indicated that if monitoring and regulatory systems are effective, the water sector will not be mismanaged and accountability and transparency will be strengthened. We note that, in the context of the Zambezi rural basin, there is no mechanism which deals with these issues in detail and this has led to ineffective water sector operations at the private, public institution, and individual levels.

To address these challenges, it is necessary for the policy makers and institutions involved to reorganise the water sector in order to improve its sustainability and ensure that poor people can participate in policy planning

processes. Water policy has to be formulated to ensure that it provides a balance which allows poor people to participate in decision-making processes in order to improve the effectiveness of the implementation planning process. The planning process has to produce a rural water supply plan to meet rural areas' needs. It has to involve legislation that transfers responsibility from the main national institutions directly to village water committee or other water users; associations, and the plan has to be water based in that it should finance the development of water supply resources for those rural areas where water infrastructure is either in a state of disarray or non-existent. In this context, planning also has to ensure that its strikes the right balance between encouraging participation and taking decisive action in order to strengthen the effectiveness of water sector policy. Participants emphasised that consideration should also be given to the private sector and other interested parties in order to develop private water schemes which would allow people in communities to participate in the sector; this would also increase water supply diversity which would benefit the poorest people in rural areas. Diversifying water supply through the private sector and other initiatives has not yet been addressed in the water sector because the private sector currently plays no role in water sector service provision.

This is mostly because private sector operators have only operated at the national level, and are particularly concentrated in urban areas; their presence in rural areas is not as strong. A study by Crase and O'keefe (2008) considered 87 communities in 13 countries and concluded that water projects managed with the participation of people achieved higher levels of water access than projects executed by external agencies, which did not succeed in improving water access for communities. Within the policy framework, empowerment has to be recognised as an integral part of the institutional policy reform agenda. It was also highlighted that the process of empowering people in the water sector has to consider developing an education and regulatory system for households so they can understand how policy is implemented and how the water sector is regulated during the implementation process. In the current context, implementation does not take into account citizens' involvement because water policy is framed at the national level and only reflects the state's interests. A participant stated that:

> ‘I was never aware of the water institutions in the area and that there was a policy reform being implemented in the rural area I was never been involved in the implementation of water policy reform. I did not understand how the implementation would work, and its intended purposes ‘(Member of household AA).

Education on the awareness of water policy is very important in this regard because it provides information to the public on water sector initiatives and the institutions involved in the implementation of water policy. Furthermore, gender also has to be taken into account in the policy reform process because, in its current form, the policy document doesn’t emphasise on the role of women in the water sector; this is because water institutions have a very low level of participation from women when it comes to decision-making activities. A study by the World Bank (2010, p.26) which was conducted in 13 countries indicated that when women did not participate in water sector decision-making processes, water activities were delayed and the water supply did not improve; however, when women were given opportunities to get involved in the water sector, the water situation did improve. The gender imbalance in water resources management has to be considered at all levels of policy reform. This has to be clearly spelt out in the policies and resources provided to those institutions with a role to play in the reform process. While the need for effective water management at a lower community level is being recognised and has been acknowledged as requiring support, it is still the case that ordinary people only participate in the water sector when they are involved in the decision-making process and the roles of the diverse key players are clearly defined.

7.1.5 WHAT COULD THE EFFECT OF POLICY FOR INSTITUTIONS BE IN TERMS OF ROLE CLARIFICATION?

In most developing countries, institutions and, more specifically, the impact of policy within institutions have been identified as key constraints to policy implementation at all levels of water sector activity. Here implementation is viewed as more complex and incremental because of the difficulties experienced by institutions implementing decision-making processes based on the currently established institutional practices within the water sector. The field analysis indicates that the non-clarification of institutions’ roles within the policy framework has meant that improvements to water supply, accessibility and

affordability have not yet been fully achieved. The effect of this is huge because it has meant citizens cannot gain access to water at an affordable rate. Institutions' roles are of critical significance, and their lack of definition has left the rural water sector to stand on its own and ultimately resulted in the decline of water services. This has also meant citizens are not in a position to understand exactly what roles institutions are meant to fill, and what precisely they intend to accomplish in the water sector. This lack of clarification has also made the reform process difficult.

Participants indicated that the inflexibility of the institutional structures presently in place in the water sector has meant institutional roles are not well clarified and embedded within water policy. There is still a great deal of ambiguity in relation to the roles and responsibilities of water institutions; for instance, the link between the NWASCO and the village water committee is not well established in terms of policy delivery and there is no clear link between these institutions which would aid the implementation of water policy reform in rural areas. The non-clarification of roles has had an impact upon water service delivery in terms of water provision because there are conflicting roles and responsibilities. Participants also expressed concerns that they do not know which institution to trust in the delivery of water policy, since each institution has its own arrangements or plans for the delivery of water services. On the other hand, some studies have indicated that where institutions have clearly defined roles, their impact on water service provision is slightly improved because each agency has its role in the water sector defined, making delivery more effective. Under these circumstances, each institution is in a position to determine what it does and how to implement policy; this promotes accountability *(*Merrey*, 2000*). This also indicates that water service provision is best managed by institutions which have clearly defined and stable roles. A study by Kampala *et al.* (2002) argues that although institutional roles can be clarified, role clarification is only one mitigating factors among many others permitting institutions to recognise what roles they play in water sector delivery. A question remains how should water policy affect institutional roles in rural areas?

7.1.6 WHAT ARE THE MAIN ISSUES WITH THE CURRENTLY IMPLEMENTED WATER POLICY REFORMS?

The implementation of current water policy reform has faced some major obstacles, and one of these is the existing institutional arrangement, which consists of the 15 water agencies, including the ministries, and all the institutions under the authority of Parliament and the President of the Republic. This is because the President of the Republic remains the sole figure in charge of controlling water as a natural resource on behalf of all citizens. Within the water policy framework, there is no indication that citizens have the right to divert, dam, or store water. In addition to this, the use of water resources, construction projects and the maintenance of water services are not permitted without prior approval from the Office of the President. This shows that citizens have no authority to extract water for domestic uses unless a permit has been granted. The Office of the President also has the power to suspend any previously granted permits if it determines that the holders of water permit have breached the permit requirements, for example, not protecting the environment, and human health and safety of the people Participants emphasised that it would be better if the water sector was established as one unit with geographical representation across the whole country; this would allow efficient management of the water sector and minimise the need for country intervention in the water sector. Participants (households and members of the village water committee) were not were not keen on the idea of various institutions being merged into one, because they believed that there were no tangible benefits to be gained from such a merger; consequently, they believed it would be a waste of resources.

They also emphasised that rather than creating a single institution to manage water, there could be two institutions, one in charge of the water sector and one in charge of sanitation. This type of institutional arrangement would be more beneficial to people in rural areas in terms of water supply provision. These various perceptions show that each institution would work better and defend its own interests of promoting water policy reform in the rural areas; this is because each institution believes it is responsible for managing the water sector, and staff members might become concerned about their futures if they believe their

institution is at risk. However, others argued that with this sort of institutional arrangement, there might be a problem over how to share resources between institutions and this would affect the overall implementation of policy reform. This was evidenced by participants who discussed dealing with the water policy reform package and argued that:

> The presence of multiple institutions in the water sector is a reflection of the government's involvement in the water sector. The water sector has to left out of politics and there should be a focus on the delivery of water services to people (Members of households AC, AD; Members A, B, D; Institution B).

In this viewpoint, although it is issued by the government, water policy should be designed by technical minds rather than political minds and have a direct mandate to improve the water sector for all, with urban and rural areas being placed on equal footing. It is important that policy is implemented within a specific context for the benefit of all citizens.

An extremely contentious issue is that of institutional privatisation. Diverse views were expressed, with some participants arguing that institutions have to be privatised in order to free them from state authority as this will provide the best avenue for the implementation of policy reforms. With this type of institutional arrangement, institutions to be privatised and the state have to cooperate in order to come up with a proper policy framework geared toward the effective implementation of water sector activities. How is this arrangement to be achieved, when it is practically impossible for the state to develop a common framework in conjunction with privatised water institutions? If the state allows this policy to go ahead, it will be left without any control over the water sector. However, the question is what role will the state play in this context? The surface data indicates that the water sector and its institutions cannot be privatised because the country cannot change, if they did allow the change, then privatisation would be possible. In the present condition, it is impossible to attain such an objective unless water legislation is modified to allow the water sector operate independently from the government without any direction from the government over policy management. The idea seems significant, but the main question is how feasible is it, particularly as the government considers water the most precious natural resource because of the importance attached

to it. On the other hand, the idea of initiating the privatisation of water institutions seems to make sense, but who will finance and control these water institutions if they are privatised?

A final analysis of the data indicates that the current policy process in the water sector has been subject to diverse interpretations in terms of theory and practice. However, the interpretations demonstrate the key changes needed in terms of the steps policy has to go through before it is implemented; furthermore, the implementation of policy is slow in the water sector. This is because it does not constitute a complete process of policy change. Improving the effectiveness of the policy processes applied in the water sector is key to overcoming the developmental challenges identified early on as facing the Zambezi rural basin. Creating an enabling environment to allow better policy processes to assist in generating policies designed to improve the water sector for communities is essential to the achievement of water sector sustainability. In order to address some of the identified policy gaps, a policy matrix is proposed in order to help design a sound model of policy processes for the water sector. This does not necessarily mean that the use or application of this policy matrix will provide solutions to the challenges faced by the water sector, but it is intended to help solve the current issues with everything from policy formation to policy implementation. This policy matrix can be used by other studies to help tackle other countries' policy development challenges and it allows comparisons to be made with other studies in other countries. This is reflected in table 15 below:

Table 15: Policy matrix for the water sector

Policy stages	Key definitions
The government to set up a programme for water policy development	Other players or stakeholders, such as nongovernmental organisations (NGOs), the private sector, water users and institutions, have to be included in discussions when a new policy is being proposed. At this stage, policy is still in the narrative stage meaning that key water policies will be formed and the institutions involved will seek to influence them significantly.
The formation stage of policy	This has to start with the inclusion of agenda items into the main text before it is presented to the legislative body or in a specific policy statement. At this stage, key agreed policy, which is in narrative form, will be applied in diverse forms and has to create intensive intra and inter-institutional dialogues. The draft also has to be circulated before it is ready to be finalised. At this stage, the draft policy has to be circulated widely to all stakeholders (meaning beyond the government) and be subject to expert and citizen scrutiny so they can give their feedback.

Adoption stage	This is stage where the decision which determines the final structure of the policy (as well as its content) is made. It should be put into law and signed by the president in the form of a decree. However, it should be accompanied by the development of essential human resources, the reform of key institutions and the assurance that the mechanisms for the reinforcement of policy will be strengthened and citizens made aware of the policy. This will pave the way for its implementation.
Implementation of policy	After policy is adopted, it enters into the implementation phase as it becomes legally binding. The time lapse between the two phases (adoption and implementation) has to be considered. One key issue identified is uncertainty around the degree to which the consensus among the main stakeholders has been identified and considered. If a consensus is lacking, the policy will be implemented poorly because it will lack support and not be properly understood by citizens or the institutions implementing it. The policy could be very vague and the roles and responsibilities within it unclarified, which could lead to the failure of the policy at the rural level when it is implemented. This could potentially hinder the overall implementation process. This has to be avoided when implementing policy.

Source: Data analysis.

This table 15 outlines key areas in which possible stages of implementation of water policy are identified and highlighted some key critical issues which have to be considered and avoided during the formation of water policy at the country level. It demonstrates that the water sector has to be considered from a broader perspective which includes citizens and other stakeholders in order to effectively conduct water sector activities. This suggests that there is an opportunity to redefine the entire process of water policy implementation and adopt it across overall water sector management approaches.

7.1.7 WHAT ARE THE LESSONS LEARNED FROM WATER POLICY IN THE ZAMBEZI RURAL BASIN?

In accordance with the findings, this section does not outline arguments which promote the merits of the water policy reforms in the Zambezi rural basin which have attempted to improve access to water for disadvantaged households and citizens in rural areas. Instead, this section discusses the key contradictions embedded in the current water policy reform process, and indicate how water policy could be improved to ensure that citizens have equal access to sustainable water supplies. Of critical importance is the question of why reforms to water policy for the Zambezi rural basin were undertaken. The reforms were principally built around the concepts of water provision and infrastructure development, but there was subsequently opposition to the neo-liberal principles embedded within the Integrated Water Resource Management (IWRM) approach by policy makers and this meant the planned reforms were abandoned The formulation and implementation of water policy reform coincided with the changing policy environment which led to the neglect of policy for rural areas; although the original intention was to provide water to rural areas, no efforts have been made to implement policy in the rural environment. Such developments from 1994 onwards created an environment which made water policy reform challenging because adoption of the neo-liberal principles of the IWRM to transform the water sector ceased to be seen as the best option; the IWRM's approach did not fit well with the local conditions in environments where water policy reform had to be implemented. Consequently, water policy did not take into account the intrinsic contextual limitations underling the key principles of water policy reform. Within the context of the

water sector, water policy was implemented broadly; it prioritised urban areas at the expense of rural areas, and consequently water policy reform provided very limited opportunities for increasing the water supply in the Zambezi rural basin. On the basis of the above findings, this study contends that any attempt to reform the water sector must focus on improving the supply and accessibility of water for rural households; reforms must confront the inequalities of previous decades, which have been extended under the current policy reforms. Therefore, it is important to stress that water policy reform must, first of all, adapt water policy to local rural realities, endeavour to improve access to the water sector and control water resources in order to improve it. One way of achieving this is for institutions to promote a broader perspective by getting citizens to participate in debates on water policy, covering its principles and objectives, over a long period of time. Citizen participation will ensure that genuine policy suggestions are made by those involved in order to break the strangle-hold policy makers and stakeholders have had over water policy reform processes. In keeping with the need to adapt the context of water policy, the study findings indicate that water policy must be linked to innovation this means it should be designed in a way that facilitates water accessibility for citizens. However, water policy adaptability has to focus on technology, provision and the maintenance of water facilities for households. One aspect of the current water policy reform is that it has created parallel and contradictory institutional processes in water management. Participants indicated that the current water policy reform has put emphasis on water management at the expense of water development. Water legislation has to be reformed because it has undermined the main decisions taken by institutions to manage the water sector. Furthermore, dividing roles and responsibilities between institutions has led to the compartmentalisation of water services provision; this has made it harder to meet the water goals of the Zambezi rural basin. Therefore, water policy in the Zambezi rural basin has to prioritise the issues identified in the water sector.

The findings indicate that the diverse players involved in the water sector, such as the public sector (local authorities and central government), the private sector and NGOs, all have different interests when it comes to its management. Participants highlighted the fact that the public and private sectors and NGOs operating in the water sector do not have a common interest, and lack shared

objectives, views and strategies in relation to promoting the rural water sector. As evidenced in the views expressed by participants, the ministries for water and energy development and health hold different views on issues relating to water projects. When the central government formulates a new water policy, the ministries of housing and the environment are normally responsible for enacting it; this is despite these ministries having very limited knowledge and experience in relation to the management of water. They even lack the necessary expertise in water management. For instance, the ministries of housing and the environment often have objectives that are of little relation to water sector management. The views expressed by the ministries of housing and the environment might be diametrically opposed to those of the ministry of water and energy development. Equally, NGOs and the private sector also have different objectives and views in relation to water development programmes; when one organisation expresses an interest in supporting a specific water project or water policy, another organisation might become opposed to it. Public participation is another key issue because all participants agreed that public participation is essential and desirable; the key issue which remains is that institutions in the Zambezi rural basin do not have techniques and methods for boosting public participation in the water sector in meaningful ways via policy formulation and implementation. In this regard, there is a fundamental question regarding the issue of public participation in the water sector that has not been significantly dealt with. For instance, what does ‘the public’ mean? Citizens of the country? Would people from outside the country be included? Should ‘the public’ include people from outside the country or the project area in question? These are questions that have to be answered because of their relevance to citizen participation in the water sector and the fact that a consensus has yet to be reached at the policy level over which ‘public’ to include in the water policy reform process.

As evidenced by the participants’ views, the question of determining public participation has to be solved because the institutions implementing policy have to determine to what extent people from outside the area or country concerned will have a right to direct how water policy reform should be implemented. For example, NGOs and International private sectors impacts on policy direction. The views of citizens should be incorporated into water policy, but the main

question of how this will be achieved remains because the various interests in the water sector present uncertainties within policy discourse. Water sector reform in the Zambezi rural basin can be linked to the historical developments of the colonial era, and by identifying the challenges and opportunities facing the water sector, it is hoped that this study's analysis will contribute to a better understanding of the current context in order to re-engage with water policy reform in the future.

7.1.8 WHAT ARE THE RISKS AND UNCERTAINTIES IN WATER POLICY?

The findings of the study indicate that water policies have many risks and uncertainties associated with them, and, because social views and perceptions have changed over time, these risks and uncertainties are unpredictable and sometimes difficult to identify. However, even if a risk can be predicted, it is not always possible to determine the extent and magnitude of its effect. Furthermore, risks have to be identified in order to evaluate the potential implications of risks in terms of water policy management. Biswas (1994; 2001) emphasises that analysing water risks is not possible because risks are difficult to predict with any degree of confidence. The findings reveal that the main risks will be associated with the pricing of water and that the price of water has to be revised sharply downwards because of the anticipated increase in demand for water in coming years. With good management of water pricing at the rural level will determines the degree of accessibility to water for the households in the Zambezi rural basin. The higher the price of water, the likelihood of households in low incomes to access water for their domestic needs. Water has to be made affordable if policy has to succeed.

Based on the above analysis of the findings, the following options can be considered:

Option one: complete review of the current water policy and institutional set up to incorporate the needs of citizens such as participation, elimination of corruption and promote good institutional governance at local level. These issues have to be incorporated at the initial stage of institutional and policy design.

Option two: designing institutions which address the needs of local citizens for water sustainability.

Based on the above two possible options, in table 16 below provides an analysis in order to determine the best suitable option for the management of water sector in the rural context.

Table 16: comparative analysis of the two options for effective management of water sector.

	Option1	Option 2
How we can implement this option	Involving citizens , private sector, NGOs and policy makers Avoiding government interventions during the review process Government should play a neutral role aimed at advising on the effectiveness of water sector. Agreed indicators by all to implement the decisions	Strengthening the Village Water Committee so that it becomes effective in policy design and implementation
Who will do it	Village Water Committee and the National Water Supply and Sanitation Council	Households , National Water Supply and Sanitation Council with support from the Government
What factors may contribute to making this option and its results effective	Citizens participation, ownership of the policy , greater autonomy, providing of funding from the government	Transparency and promotion of good governance within the institutions

What factors might contribute to preventing or obstructing this option	Lack of funding, resistance to change in the new institutional dimension Limited participation and lack of institutions empowerment to design policies geared towards the needs of the citizens.	Political interference and lack of autonomy in allowing the Village Water Committee to take the ownership of water policy processes

Based on this analysis we can see that option 2 is the most preferred because it gives the Village Water Committee greater autonomy and power to become involved in the management of the water sector.

7.2 CHAPTER SUMMARY

This chapter has discussed water policy in the context of the institutional framework, focusing on how adequate it is and its legal framework in order to assess how effective the policy framework has been in the water sector. It has also explained how the legal framework can be considered the most important element of the overall policy framework because it has the potential to guide water sector operations and their management. It has also demonstrated how the legal framework could be strengthened in order to achieve sustainable water sector service provision in rural areas. The study has identified key factors that have obstructed decision-making processes in the water sector; these have included the budgetary process and the disintegration of water institutions. It has further proposed what policy triangle, which takes into account institutions, their regulation and the delivery of services. It has also highlighted the key challenges facing the delivery of water policy reforms in terms of the implementation of reforms to solve the water supply issues in rural areas. It has also discussed the effect of policy on institutions in terms of role clarification and how this has affected the overall water delivery system, indicating that the non-clarification of institutional roles in the water sector has significantly contributed to the current ineffectiveness of policy and institutions. It has explained how difficult it is to implement current water policy in the context of reforms to rural areas.

Chapter 7 concludes by stating that while there is a water policy framework for managing the water sector in real terms, its implementation on the ground suggests a different picture. Policy reform has not yet been implemented as expected due to various combined factors which include weak institutions and conflicting policies in the water sector as well as other factors that have been discussed. It indicates that a properly developed legal framework can function only if it has the support of other critical pillars such as policy and institutional delivery support mechanisms. The findings also reveal that although it had objectives, formulated around promoting the fair distribution of water accessibility, affordability and provision. The next chapter will specifically

discuss the effects of policy within institutions in the Zambezi basin in terms of water supply facilities.

CHAPTER 8: EFFECTS OF WATER POLICY AND INSTITUTIONS ON THE STATUS OF WATER SUPPLY FACILITIES AND THE HEALTH OF POOR CITIZENS

The previous chapter examined water policy in the context of the Zambezi basin and how it has shaped the entire rural water sector. The effect of the policy was not discussed, so this is an opportunity to examine it in detail and determine what impact institutions' policy implementation the water sector. This chapter explores the potential effect of water policies and institutional reforms on the water sector in rural areas. Specifically, the chapter will focus on how water policy has impacted the status of water supply facilities and its consequences on the poor. This chapter will be divided into two sections. The first section will examine the status of water supply facilities, and the second section will examine policy effect on the health of the lower social classes.

8.1 INTRODUCTION

Determining the status of the water supply facilities with regard to institutional policy reform is necessary to understand whether institutions have effectively implemented policy to improve the sustainability of water in terms of the delivery systems for water supply facilities. The main question will be: to what extent have institutions and policy impacted on water supply facilities, and what are the likely effects of these on the citizens' health?

In the past, water supply facilities have given rise to very limited water sustainability services; this is partly because they were considered as part of the engineering domain, which meant the construction suffered. However, the principal reason was that water supply was considered to be of limited success, and the supply of water is based on how much water infrastructure facilities can provide rather than how it can help with the provision of the physical infrastructures. The provision of physical infrastructures for water supply remains in the domain of the institutions. Institutions have to define clearly clear water policy aimed at supporting the development of physical infrastructures for the water supply. In this context, there should be a new paradigm shift from the previous on-going water supply to more focused water facilities services. It has

to be viewed as an on-going programme in terms of strategy implementation to ensure the sustainable provision of water supply services. The main question is: why are we focusing on rural water supply facilities? This is because a recent report by the World Bank focusing on Sub– Saharan Africa(SSA) , indicated that 248 million people (44 per cent in the year 2006 in comparison to 41 per cent in 2009) were without water in rural areas (World Bank 2010). According to the same report, the coverage of water in Africa in 2009 was estimated to be 78 per cent (38 million) of people living in urban areas. It is therefore clear that rural areas in many parts of the African continent are lagging behind in comparison to the urban areas in terms of water supply. Coupled with the higher water poverty levels in rural areas, this has decrease households water accessibility. This indicates that focusing attention on how to provide water services to rural communities in many parts of Africa has become an important objective of water sustainability.

8.2 WHAT IS THE CURRENT STATUS OF WATER SUPPLY FACILITIES?

In the context of water supply facilities, it is estimated that one third of the entire population living in the rural areas of the Zambezi basin in Zambia have no suitable access to a water supply that is safe to drink. Another section of the rural population is served with safe drinking water because of their social classes in the Zambezi rural basin, but these citizens are struggling in terms of how to maintain their water supply facilities. The rate, at which water supply facilities are deteriorating, and the consequential rise in the prevalence of disease, has been very alarming. At the level of water institutions, there are two significant issues that the institutions in the Zambezi basin face: how to construct new water supply facilities; and how to maintain the existing facilities. If it is possible to find a way to repair and maintain existing water supply facilities, citizens could gain access to safe drinking water. If water supply facilities are not made sustainable, the number of citizens with access to safe water supplies will continue to decline, this would mean a significant rise in the number of citizens affected by water borne diseases. This issue is not unique to the Zambezi basin alone, or even to Zambia as a whole; and it has become worldwide issue. It can be seen that the water supply facilities in the Zambezi

rural basin have become unsustainable with rapid deterioration. For instance, Lungu and Harvey (2008, p.43) indicated that in Sudan, 60 per cent of water supply facilities have been identified as being out of operation and beyond normal repair. In current study, are specific reasons for the decline in water supply facilities were identified at the time of the interviews: for instance, lack of water users' (households') participation in the maintenance of water supply facilities, as the identified main end users of water supply facilities. However, attempts to make citizens participate in the management of water supply facilities have failed as evidenced by participants who expressed concerns that the 1994 Water Act states:

> Sustainability of water resources has to be at the heart of the policy reform agenda in order to enable smooth running of the equitable water service provision in terms of quantity, and quality for all water users at a very affordable cost and maintaining water supply security (NWASCO, 2010, p.28).

In this context, sustainability refers to how water supply facilities will be maintained in order to improve operations. If water facilities are well maintained, the continuous supply of safe water to citizens can be ensured. Sustainability in this context indicates that the water facilities have to be maintained to a certain standard for the provision of safe drinking water. If water is safe, then its quality is also improved. Furthermore, the study shows that there is very limited participation of water users in water activities such as the operation and management of water supply facilities, and they are not given change to self-controlling of water supply management. Water users have no rights to fully participate in the decision-making at the rural level. Water policy implementation has not encouraged poor people to engage in water sector management; this has meant that the vulnerable people accessing water service provision and playing their roles in relation to water supply facilities are the ones that suffer. A review of related literature also indicates that the issue of citizen participation has been highlighted by water institutions. For instance, Shah *et al.* (2002) emphasised that policies have to be formulated to permit people to participate in the water sector reform process; he emphasised the issue of citizen's participation in his review of the water policies of a number of countries but its implementation remains a critical challenge because various players have diverse water agendas to pursue. This has led institutions to not yet be in the position to promote this aspect of policy implementation.

Nevertheless, some exceptions can be observed in countries such as South Africa and Botswana where citizen participation in the management of water supply facilities has brought positive outcomes. For instance, in South Africa citizens have been participating in the repair of hand pumps in the Soweto area, and they have set up a user-friendly fee structure which collects contributions for the maintenance of the water supply facilities. In Botswana, citizens have been given full power to organise themselves in water cooperatives in order to help them learn how to operate and maintain their water supply facilities. This confirms the findings of this study, in which participants emphasised that promoting citizen participation in water sector facilities, particularly on the supply side, has to become part of the overall water policy; this is because when citizens manage their water facilities, they have a commitment to maintain them rather than rely on the state to facilitate their maintenance and operation. States and their citizens have to fairly share these responsibilities; for example, the state could provide spare parts and citizens contribute to the operation and maintenance of facilities. This would give both parties the flexibility to commit to the maintenance and operation of water facilities sustainably. Other reasons identified in the status of water supply facilities in Zambezi rural basin have to reflect citizens and institutions shared responsibilities in the management of water supply facilities. A common approach toward the operation and maintenance of water supply facilities has to be clearly defined within the policy framework. The status of water supply facilities indicates that which indicates the year when the construction took place, and the number of households in the area (in this case, area is referred as 'ward'), how the decision-making process is conducted, the sources of finance for the operation of facilities, the contribution of communities, systems of management, the effectiveness of the management systems, the key roles of traditional chiefs, other alternative sources of water supply facilities, the impact of alternative users regarding fee contributions, issues linked to the economic ability of the communities, and issues linked to the technological ability of the communities. These are summarised in table 16 below. This table (17) shows the functional water supply facilities and non-functional water supply facilities in relation to the Zambezi rural basin.

Table 17: The status and availability of water supply facilities in the Zambezi basin

General Information obtained	**Information on specific communities (wards)**	**Ward 1**	**Ward 2**	**Ward 3**	**Ward 4**	**Ward 5**	**Ward 6**
Useful information	Providers of information	Village water committee Chairman	Deputy Chairman of the village water committee	Households members	Chairman of the village water committee	Members of the village water committee	Chairman and three water members of the households
	Water facilities year of construction and rehabilitation	1995	1997	1998	1999	1999	2000
		Rehabilitated	Rehabilitated	Constructed	Rehabilitation abandoned	Constructed but not yet rehabilitated	Constructed
	Number of households in the area	500	350	1000	1800	600	900
	Decision-making process for water supply facilities/ construction and rehabilitation	Lack of community involvement	Lack of community involvement	Lack of community involvement	Lack of community involvement	Lack of community involvement	Lack of community involvement
	The status of water supply	The water supply	The water supply	The water supply	The water supply	The water supply	The water supply

	facilities	facilities are functioning well with good drainage systems	facilities are poorly maintained and not functioning well	facilities are functioning well with good drainage systems	facilities are functioning well with good drainage systems	facilities are poorly maintained and not functioning well	facilities are poorly maintained and not functioning well
	Sources of finance for the operationalizatio n of water supply facilities	Government but there has been a delay to the financing of the facilities, it takes time for funding to be approved	Households contribute with a fee of 1 USD	Communities participate by cleaning the area surrounding the water supply facilities	Households contribute with a fee of 1 USD	Households pay a fee to contribute toward maintenance	Households pay a fee to contribute toward maintenance
Contribution of the communities	Not contributing	Some give cement, sand, and other construction materials	Sand and water	No contribution at all	Give cement and sand	Give cement, sand and water	Sand and water
Systems of management	Village Water Committee partially involved but with no responsibilities at all	Village Water Committee partially involved but with no responsibiliti	Village Water Committee partially involved but with no responsibilitie s at all	Village Water Committee partially involved but with no responsibilitie s at all	Village Water Committee partially involved but with no responsibilitie s at all	Village Water Committee partially involved but with no responsibilitie s at all	Village Water Committee partially involved but with no responsibilitie s at all

		es at all					
Effectiveness of the management systems	The management system is not effective	The system is effective	The management system is not effective	The management system is not effective	The system is effective	The system is effective	The management system is not effective
The key roles of traditional chiefs	Limited in influencing the water supply facilities operation	Does give some advice on how to improve the managemen t of water supply facilities	Limited in influencing the water supply facilities operation	Not entirely involved because of personal commitment to other issues	Does give some advice on how to improve the management of water supply facilities	Limited in influencing the water supply facilities operation	Does give some advice on how to improve the management of water supply facilities
Alternative sources of water	Shallow wells	Water harvested	There are no alternative water sources	Stream water	There are no alternative water sources	Stream water	There are no alternative water sources There is no any other alternative to water sources
Impact of alternative water source use	There is a negative effect during the rainy	There is a negative impact during the	Not applicable regarding other water	It has a negative effect	No report of any negative effect	It has a negative effect	No report of any negative effect

regarding fee contribution	seasons	rainy seasons	sources				
Issues linked to economic ability of the communities in relation to water supply facilities	Able to contribute to the cost of water supply facilities maintenance, e.g. spare part costs	Not able to contribute to the cost of spare parts due to the low income at the household level	Only households who have given a firm commitment to contribute to the cost of spare parts and other maintenance work	Not able to contribute to the cost of spare parts due to the low income at the household level	Only households who have given a firm commitment to contribute to the cost of spare parts and other maintenance work	Not able to contribute to the cost of spare parts due to the low income at the household level	Only households who have given a firm commitment to contribute to the cost of spare parts and other maintenance work
Issues linked to technological ability of the communities	Able to maintain water supply facilities through technological advancement	Able to access wells but the main problem is that wells dry up during the dry season; access to obtain spare parts	Wells are good but water is likely to be contaminated	Boreholes are suitable for the area	Wells are good but water is likely to be contaminated	Boreholes are suitable for the area	Preparing to obtain a hand pump
	Likely problems facing the communities to maintain water supply facilities	Unable to raise funding to purchase spare parts to maintain	High cost of spare parts	Maintenance and high cost of operation	Not able to raise water user fees	Members of the community have stopped contributing to fees for	Funding is still difficult to secure

		water supply facilities				water supply facilities	
Issues linked to water supply facilities sustainability	Communities prepare to sustain and maintain water supply facilities	Communities not well prepared to maintain water supply facilities	Communities not well prepared to maintain water supply facilities	Communities prepared adequately to maintain water supply facilities	Communities prepared adequately to maintain water supply facilities	Communities prepared adequately to maintain water supply facilities	Communities not well prepared to maintain water supply facilities
	The degree of external support for the management of water supply facilities	There is no support from external sources	There is no support from external sources	There is no support from external sources	Communities do receive some forms of external support in the form of spares and maintenance from local businessmen	Communities do receive some forms of external supports in forms of spares and maintenance from local business men	There is no support from external sources
	Significant factors to be	Water user fees, and	Spare parts (rods, pipes,	Spare parts and lack of	Spare parts (rods, pipes,	Spare parts (rods, pipes,	Spare parts and lack of

	considered to sustain water supply facilities	access to spare parts	valves and others); water user fees	local skills needed to repair the water supply facilities	valves and others such as lubricants); water user fees	valves and others); water user fees	local skills needed to repair the water supply facilities
	Significant factors put in place to strengthen the sustainability of water supply facilities	User fee mechanisms established	No user fee mechanism established	No user fee mechanism established	Lubricant has been purchased	User fee mechanisms established	Lubricant has been purchased

Source: data analysis.

Table 17 gives an overview of the status of the water supply facilities in the Zambezi basin in order to determine how these facilities have been maintained and whether they are still in operation. The table attempts to interpret the information shared by participants about water supply facilities. It demonstrates that six water supply facilities were built or rehabilitated between 1995 and 2001. These water supply facilities were built to provide safe water supply access[16] to citizens in the Zambezi basin. The construction of these facilities was part of the state intervention to meet the needs of citizens, while the rehabilitation of water supply facilities was a response to the deterioration of the water infrastructures and part of government efforts to support water sector service delivery through institutions. Deterioration of the water supply was due to the fact some of these facilities were abandoned due to the non-maintenance and the associated rehabilitation costs. The age of these facilities also had an impact on whether water supply facilities were operational. The average age of water supply facilities currently in use is estimated to be six years. If water supply facilities are not properly serviced, there will be problems of systems breaking down, which would limit the supply of safe water to citizens. One particularly interesting point is that the number of citizens using these water facilities ranges between 350 and 1800 citizens per water supply facility such as water hand pumps. This shows that there are limitations on how some citizens can access to water in comparison to the rest of the population. For instance, a hand pump is the most common of the water supply facilities used by citizens, but the difficulty with this type of water supply facility is how to maintain it and secure appropriate spare parts for its operation; therefore, once it has broken down it can take a long time for the spare parts to be obtained. Within the state water policy, it is recommended to have only 50 citizens per water supply facility, regardless of its nature and its capacity, in order to maintain the life cycle of water supply facilities. However, this standard has not yet been met as water supply facilities are used by more than 50 citizens, showing that the situation is not meeting the state established requirements and that water supply facilities are limited in terms of their capacity to meet the demands of the rural local population. Out of six wards, five contributed to building the water

[16] Water supply access is a concept used to measure the rural water targets in terms of access to water. However, in some literature, the term 'water Access' has been used interchangeably with the term 'water use'. Within human rights discourse, the term access is refers to other several aspects of water supply (Water Aid, 2012, p.34).

supply facilities with construction materials; this indicates that citizens are taking charge of ensuring that water facilities are maintained in the short term rather than the long term. Taking part in the construction of water supply facilities shows that citizens are willing to improve the status of water supply facilities in order to receive safe water. However, one community did not contribute towards building materials. It is likely that the reason for this was that there was no request from the ward. It is also significant to observe that all six water supply facility wards have established management systems in the form of village water committee which is without specific responsibilities but is partially involved in the mobilisation of rural people to contribute towards the maintenance of water service facilities. As discussed in chapter six, their roles are of a voluntary nature because Villages Water Committees are not covered by suitable regulatory frameworks: they operate to advance the water sector reform process. However, it is also important to demonstrate that all alternative water supplies have a negative effect on the rural community's participation in the maintenance of water facilities, because many communities stopped contributing towards user fees in the rainy season. This means that, during the rainy season, people rely on rain water for their domestic activities, with water facilities becoming a secondary issue for them. In this context, some members of households indicated that:

> ... the rainy season, which occurs between November and April each year, gives us the opportunities to store water and carry out agricultural activities … this period is vital for us people who are poor; it gives great relief in terms of water supply and sanitation (Members of households AC, AG, AH, AI).

Participants from the four wards expressed the view that they are not in a position to contribute to the cost of spare parts and other related materials that are necessary for maintaining water supply facilities in rural areas. The spare parts are very expensive and they can only afford to contribute to the cost of less expensive parts such as valves, and pipes. Participants also said that cylinders and rods are expensive and they are not able to afford it when the water pumps breaks down and it is therefore difficult to meet the costs. In this context, participants suggest that the inability of rural households to meet the costs of the most expensive spare parts is due to their economic situations of these wards. The issue of spare parts for water supply facilities, particularly in

connection to the water hand pump, was highlighted as one of the key challenges facing the Zambezi rural basin. It was also indicated that, as the private sector is not able to provide spare parts on time, it has become an unreliable partner for citizens. In cases where the supply of spares is directly linked to other independent private sector companies which might include technical services aimed at constructing, operating, maintaining and providing pumps, and ensuring the availability of equipment sustainability is likely to be attained. In this context, alternative strategies will also be used to reach or involve other potential non-profit organisations, such as charities, for the provision of water supply facilities. Furthermore, the issue of spare parts could be minimised to a great extent if the community uses technical solutions available from the Zambezi area so that, in principle, the spare parts do not need to be imported from overseas or elsewhere in the country.

Some participants also expressed the view that they were not consulted on the best kind of technology to meet the needs of their communities; the technology was imposed on them. India Mark 2, which is a hand pump, was the leading choice of technology for all wards. Even though no members of the communities were consulted about the choice of technology, three participants emphasised that they were able to handle the technology in terms of operation and repair and they had gained their skill from prior training. It is noted that four communities with functioning water supply facilities indicated that they have no external assistance from water institutions to facilitate construction or rehabilitation of their water supply facilities. This demonstrates that institutions have failed to maintain their presence in the delivery of water services, and support poor people in accessing and maintaining water facilities. Other participants also indicated that the current arrangements for water facilities maintenance in the water sector are not effective. This is mainly due to the inability of communities to contribute to the cost of the spare parts and other materials needed for the continuity of water supply systems. Another reason can be attributed to the fact that poor people do not have access to tools for repairs and spare parts, and have inadequate knowledge about technology. However, in this regard, communities depend on their local member of parliament who has the ability to supply spare parts when there is a water

supply problem in the area. A study by Hunt (1999) indicates that technology accessibility remains one of the greatest challenges to the rural communities, because rural water users need the capacity to improve their skills and understanding of operational manuals in order to sustain water supply facilities; this is absent in water institutions. Weak policies could lead to communities being unable to effectively manage the modern technologies available for the operationalisation of water supply facilities. However, we note that the management of water technologies will only be effective if rural people are trained in the right skills, given the necessary resources, and provided with incentives.

Other participants said that there are some specific critical factors which could impact on the sustainability of water supply facilities, and these include a community's ability to: contribute to water user fees; repair water facilities on their own; and raise the fees necessary to purchase maintenance materials.

In this context, the selection and use of technology still has an impact on water supply. The chosen technology should be cost-effective. If technology is selected on the basis of these criteria, it will be easier to sustain in comparison to technology that requires specialised technical skills. If institutions are able to facilitate it, household water supplies should overcome these obstacles in order to promotes the sustainability of safe water supply facilities in communities and to ensure that these communities have a sense of ownership. To this end, a number of possible options should be identified in order to sustain water supply facilities. For instance, local technologies can have a positive impact on water supply because they can help citizens to find technologies closer to where they live and this will encourage interest in sustainable water supply facilities. A study by Jackson and Morrison (2007) conducted a relevant analysis in six countries: Kenya, Tanzania, South Africa, Botswana and Mozambique. In this study, the authors argue that, at the time of the study, nine to eleven per cent of water facilities were operational, and of these, most had been installed some years back and are still in good conditions. Effective operation and maintenance of the water supply facilities came as a result of the adoption of locally produced water supply facilities by the citizens. However, the figure of 11 per cent was a result of factors such as the motivation of communities to

participate in water supply facilities management; effective leadership; variation in water dependency of the communities on water sources; and rehabilitation of pumps and other broken water facilities (with funding coming from the government and donors).

In summary, evaluation of the status of water supply facilities in the Zambezi basin has shown that water supply facilities are not sustainable in the long run. This is mainly attributed to the previous water policies which have made water supply facilities expensive and inoperative; this has affected citizens' ability to access water when they require it. Only one type of water hand pump is used, and this has also contributed to the limited water supply. Policy should promote various choices which are adaptable to local rural needs. The main question that remains is how can the impact of policy be addressed within a local rural context? The next section will evaluate how policy has impacted on citizens' health.

8.2.1 HOW CAN WE EVALUATE THE EFFECT OF POLICY AND INSTITUTIONS ON THE HEALTH OF CITIZENS?

This section analyses the effect of policy and institutions on the health of citizens in relation to water supply facilities. Health is the biggest issue linked to water sanitation service provision. Relevant literature posits that water quality has to be considered within the national water development policy to improve the sanitation of water service facilities. This has many consequences on the health of poor people in many developing countries. A study by Nyambe *et al.* (2002) highlights that the impact of water on diseases is closely linked to water demand management and the health of human beings because one has an effect on another. Access to clean water will improve the hygiene and health of people living in poverty and consequently minimise the effects of illness and other related water borne diseases. When participants were asked about the impact of water quality on health, they stated:

> The quality of water is of paramount to public health, but we have been experiencing a number of water- related problems in terms of the quality of drinking water…In 2009, we experienced severe flooding in our area, the water table was very high meaning it rose significantly and therefore affected the ground water resource which is vital for us. This led to

sanitation waste entering the drinking water boreholes, which affected the quality and causing health issue. This also affected the water infrastructure, because of the flooding effect, and subsequently people in the areas had access to sanitation facilities. The area saw an increase in malaria and other related diseases. Good water quality is considered to be good for health and particularly for flushing out undesirable materials (Members of households AB, AC, AF, AG; Members A, C, H, G, I; Institution B).

The above point is evidenced in the picture 3 below which was taken during the field study in 2012. In this picture, it can be noted that the status of water quality had deteriorated due to the fact that maintenance has become very poor in terms of sanitation, thereby affecting the quality of water. During the rainy season, citizens have difficulty fetching water due to flooding, and consequently debris and other unwanted materials are brought into water supply facilities. It will therefore affect the wellbeing of citizens in the Zambezi rural basin

Picture: The status of poor quality water

Source: Fieldwork, the status of water supply facilities.

From this perspective, the effect of water policy on the health of citizens in rural areas is determined by policy and institutional reform implementation in the

Zambezi basin. The participants further indicated that, despite concerns about the health of citizens, the situation in the water sector is gradually improving because policies are being implemented throughout the country. Within the policy framework, there are two types of water interventions that determine the progress of water policy reform: control of water quality and the establishment of innovative water infrastructure capable of adapting to the environment. Participants also indicated that, in recent years, the policy has had positive effects on the health of the poor with the percentage of those affected by diarrhoea falling from 35 per cent to 25 per cent in rural areas of the Zambezi basin. This is principally due to improvements to water infrastructure and the process of water treatment, which have reduced health issues. This demonstrates that the effects of policy on citizens' health were positive in households where citizens had safe water connections. On the other hand, where households were not connected, as evidenced in the picture above, water policy was not significantly effective. This is confirmed in a study by Sarah and Judith (2010) which demonstrates that health issues related to water are a manifestation of poor policies and the weaknesses of institutions' policy implementation. It is clear then that an efficient water management policy is needed if the health and well-being of citizens in rural areas are to be improved. Analysis of the field study findings indicates that the effect of policy and institutions on citizens is very complex, which emphasises that water policy has to be re-examined to understand its effect on the delivery of 'services' to citizens, In this regard, policy makers have to ensure that policy implementation does not hurt poor people; not all policies directly address the needs of this particular group, but policies concerned with water service provision should be implemented to ensure citizens have access to water and water-related facilities. The analysis of the findings therefore indicates that institutions did not, in real terms, help citizens move from water dependency towards self-reliance; nor did they save citizens from having to fetch water from a distance and use unreliable water sources, giving citizens the opportunity to access improved water supplies In reality, the communities will need to interact with external institutions such as nongovernmental organisations, water users' association, local government, and the private sector which will help them to gain access to water facilities. This will ensure that water supply facilities and sanitation are

protected, avoiding key potential pitfalls. The first pitfall is related to the myth that technologies can be transferred and that rural communities where water is being managed can be left alone to manage the water supply without further support. This is evidenced by the fact that many water supply facilities are run down due to the lack of continuity around technological inputs, funding, and institutional support. The second myth is that rural communities have become more dependent because of institutions' implementation strategies. For instance, the analysis shows that institutions failed to provide the necessary support, and that the rural community is no longer able to meet the demand for water. It is certainly possible for the water supply to be successfully managed, but the weaknesses in institutional structures have undermined the success of the water sector. It is therefore necessary for institutions conducting water sector activities to ensure that they have plans to boost communities' self-reliance, and, at the same time, it is also necessary to introduce robust structures in terms of institutions within the rural community or strengthen existing ones in order to properly support the water sector.

Weak institutional structures have not sufficiently supported the water sector, as reflected in table 18 below which indicates the number of households that responded to water point interventions in the Zambezi rural basin.

Table 18: Responses of the households to water point interventions in the Zambezi rural basin

Principle water sources used			Water point interventions	
2011	2012	Total	2011	2012
Unimproved water sources	Unimproved[17] water sources	899	109	5
Unimproved water	Unimproved water	488	70	32

[17] Unimproved water refers to sources of drinking water which are not protected; it is the kind of water which is supplied by rivers, lakes and other sources (UNEP, 2012, p.27).

sources	sources			
Unimproved water sources	Unimproved water sources	29	14	5
Improved water sources	Improved water sources[18]	12	19	0
Total number of households		1,428	212	42

Source: Data analysis.

The table 18above shows that households will only be able to switch to an improved water source when they have the opportunity to access a suitable improved water source. If households wish to switch to improved water sources, they must be willing to make the necessary changes in order to obtain access to improved water sources. In the same table, it can be seen that many households will only make the switch if improved water sources are introduced in the area, but not all households will do so because of the regulation associated with the water supply. This means that unimproved water sources are more prevalent than improved water sources. The table also shows that between 2010 and 2011 the number of households which had unimproved water sources was estimated at 1,416; during the same period, only 12 households had accessed improved water sources. In 2011, the number of households that did not access water point interventions was estimated to be 193, and in same year the number of households that had water point interventions was estimated to be 19. In 2012, the number of households without water point interventions was estimated to be 42, while in the same year the number of households with access to water point interventions was zero. In summary, findings indicate that the area influence the shift in household's willingness to access water source and the number of households having no access to water interventions in overall is high. These trends can be attributed to institutional management issues because they have not yet implemented

[18] Improved water sources refer to protected water sources with water supplies facilities such as boreholes (UNICEF, 2012, p.54).

policy adequately to strengthen water sources and improve water point interventions(UNICEF and WHO 2008).

8.2.2 HOUSEHOLD WATER COSTS

In this context, the Chairman of the village water committee stated, 'the committee pointed out that the number of households not paying for water in the Zambezi rural area has increased tremendously since 2011 based on the information available for village locations. In this quote, the Chairman expresses a concern over household's inability to pay water, because of their lower social classes Based on this concern, the various types of household water costs are illustrated in the table below.

Table 19: Payment modes for households

	2011	2012
No payment	36	68
Per month	18	89
Per bucket	3	9
Total water points	57 locations	166 locations

Source: Data analysis.

The table 19 above provides a summary of the findings on household charges for locations in the Zambezi rural basin in relation to improved water sources. This table shows a monthly charge is the most common arrangement. However, 36 households indicated that they did not pay water fees at all because of high water charge However, participants indicated that charging for water has become more pronounced in some locations in the Zambezi rural basin, and it has become standard practice because of a lack of water facilities and the projected decrease in water points in the coming years. However, when asked about the distance between where they live and their nearest water source, participants emphasised that distance has become the most significant barrier to their accessing water, particularly when it comes to improved water sources.

Participants did not clearly indicate how refusals to pay for water are dealt with. This is a very important finding as although many studies have discussed water pricing in developing countries, they have not highlighted what mechanisms are in place for occasions when households refuse to pay for water at the point of use. The findings also indicate that the number of households with access to improved water sources is rising, and, and at the same time, the findings also reveal that the number of households without access to improve water is higher. This is negative development because the ratio increasing would mean facilities were under increase stress. It has led to the number of water points remaining far below the original targets of one per every 600 people. This is reflected in official statistics (OCS, 2010), as well as in other documentation and surveys.

8.3 CHAPTER SUMMARY

This chapter has discussed the key impacts of policy and institutions in the context of households in order to understand how they have impacted on the status of water supply facilities and citizens' health in the Zambezi rural basin. The discussion of citizens' health took into account how policies have improved the quality of water in order to reduce potential health issues. The status of water supply facilities was examined to understand either how water supply facilities have deteriorated or how the safety of water has been improved as a result of policy implemented through institutions. The chapter has indicated that some progress have has been made in improving water sources in the areas of health and water accessibility, with beneficial effects on the lives of poor people. However, the impact of the policy has not been as positive as envisaged due to the ineffectiveness of institutions when it comes to their improving water supply facilities in order to improve the health of citizens. The next section analyses why the framework of analysis has to be revised in order to understand various key issues that have emerged during the data analysis.

8.4 REVISING THE FRAMEWORK OF ANALYSIS

This research study has gathered the necessary data and completed an analysis of the collated information. The framework of analysis requires specific changes in order to become adaptable to the rural water situation to address

the water supply. The previous theoretical framework as discussed in chapters 2 on water policy and institutions did not require an analysis of specific data on policy and institutions in the water sector; such analysis could have facilitated a deeper understanding of key issues. This study therefore proposes a review of the framework, which would consist of four key elements: policy, institutions, effects, and the legal functions of the said institutions. Research on existing literature has revealed a focus on institutions and policy within a broader context; that is, an assessment of policy and institutions from an economic perspective rather than the water sector only. Economic perspective focused on the economic value of water but there was no focus on how to make accessibility to the poor citizens who do not have the financial possibility to pay for the water. The conceptual model adopted for this study demonstrated considerable promise in addressing the issues of institutions and policy for the rural water supply. It has allowed the researcher to develop in line with the research question a greater understanding of the most likely factors to contribute or constrain water delivery. This framework, as well as other conceptual frameworks discussed in chapter 2, will take into account corruption and its link to poor governance; this was not part of the original research question, but has come to light during data analysis. Policy has to be continuously reviewed (by both policy makers and households) to not only assess its failure or success but also to help its implementation and how it can be managed. The study has shown how policies and institutions affect access to the most basic of water services, especially with regard to people with low economic status. Amendments to policy and institutions should focus on a high level of policy delivery and implementation to meet the water demands of these economically impoverished sections of society. However, this study's framework reflects how water policy also needs to be further refined to include certain elements, such as the allocation of water resources and the roles of the households. The division of the cost of water supply facilities implementation mechanisms between agencies and households must also be considered.

Water sources are an important indicator of whether policy and institutions should be strengthened in the Zambezi rural basin. The issue of improved water in rural areas is also linked to policy, and institutions should have a better, more flexible regulatory system that allows citizens to own their own source of water

and manage it in a more sustainable way. Both policy and institutions have to be sustainable; the current policy act only considers the short term, not the long term.

Citizens are willing to cooperate with institutions, but they are unable to adapt to the changing needs of citizens; this remains an important issue and has to be considered when designing new policies or amending an existing ones. The absence of ownership of water supply facilities has been overlooked in current policies; this has made it unsustainable. Water cost, which is associated with current policy, has to be addressed to give citizens affordable and clean water.

As highlighted in this chapter, the quality of water has to be taken into account when implementing policy. Institutions have to develop a water infrastructure or assist citizens in improving water supply facilities (this is lacking in the Water policy Act of 1994). The current water policy does not emphasise water treatment, and any improvement in the quality of water cannot be attributed to policy intervention, but to the fact that citizens use personal preventive measures, such as the use of boiling water to kill bacteria. Water quality is one of the key initiatives that institutions should encourage to supplement citizen efforts. Water connectivity is also a concern: it is difficult for citizens to be connected to a water supply at an affordable price. There is also no structure by which institutions can connect citizens (initially) for free and allow them to pay the balance later, at an agreed time. This arrangement would minimise the impact of the price of water: institutions could collect the water fee in deposits, payable every three months. The private sector and NGOs could also work together to encourage water connectivity, but this is currently absent within water policy.

The issue of allowing citizens to become self-reliant with respect to water supply has to be addressed. Water supply is still controlled by the government, as it provides funding citizens do not have a role within water policy. Responsibilities in the water sector are divided as such: the government forms the policies and institutions implement them. In order to address key issues highlighted in this chapter, however, the revised framework of analysis has to incorporate a larger role for citizens in the operation and maintenance of water supply facilities, and reinforce an institutional role within water policy to ensure that all the agencies

discussed in chapter 2 are given the opportunity to adequately support water supply. For instance, the private sector and NGOs should participate in water policy discussions. The private sector will include international and national suppliers that can develop a supporting operational and maintenance role; they could help design and manufacture pumps and other necessary equipment in the Zambezi rural basin. It is also important for policy to provide opportunities to international and national contractors to help rehabilitate and extend maintenance schemes for rural communities. NGOs should be given opportunity to train, raise awareness at the community level, and provide technical assistance. There should be an approach to developing a community-driven supply.

The study indicates that citizens have to be given greater responsibility in water management as they are the ones who know how to effectively use the supply; the government is far more interested in the economic value of water and its ability to generate revenue. It is also significant that when citizens are fully involved in the operationalisation of the water sector, at both a policy and institutional level, their involvement facilitates better policy implementation. Institutions also become more focused on addressing challenges, such as non-accessibility to water; the difficulties in obtaining water permits; and poor water quality (which has adversely impacted on citizens' health). Citizens should have more control in water management, but, unfortunately, this is not the case in the present policy framework. Citizens have gained a measure of control in institutions like the Village Water Committee, and the National Water Supply and Sanitation Council (NWASCO); as the Village Water Committee grows stronger, there is a likelihood that water supply will improve, as citizens will make the Village Water Committee accountable to them. The role of the government (state) has to be reduced, and institutions should be made more autonomous. The government's role should mainly focus on providing support in terms of funding, and facilitating an environment that allows rural institutions to implement policy in line with the needs of poor households. When the government restricts itself to such a role, it will ensure that accountability is promoted and collaborative effort established between various institutions in the water sector. In the current water policy framework, the issue of accountability is

of critical concern: the government is not accountable to its citizens or even to public institutions such as the NWASCO.

The issue of corruption has also been highlighted as a constraint on good water management: it has been seen as the core of the current water governance crisis, and certain reforms are required to increase institutional effectiveness. At a household level, the cost of dealing with corruption is felt in the inadequacy of water service delivery, which contributes to households being unable to access water for domestic activities. The burden incurred from corruption traditionally falls upon the women at the household level. Corruption has also jeopardised equality in water access. Because of corruption, institutions in the water sector are less focused and more condoning of private benefits. Laws have been undermined, and this has affected the regulation of the water sector. There is a gap between how the water sector should be regulated and the way it is presently managed because of an absence of strict legislation to deal with corruption. This has, therefore, contributed to depriving citizens of their right to clean drinking water. The findings also indicate that corruption controls the process of water accessibility in terms of who does and who does not access it, when to access and where and how. It has also established a permanent gap between wealthy and poor households with regard to ownership of water supply facilities or access to clean drinking water. There are various institutional systems of dealing with corruption in the water sector, and these are important, but are not spared from corruption themselves.

Regarding institutional roles and arrangements, there are diverse institutions involved in the management of the water sector. Each institution focuses on attaining optimum water service, but does not coordinate with other institutions to sustain the water supply. Institutional roles have not been clearly defined in terms of responsibilities; this has led to the duplication of responsibilities and has, consequently, constrained necessary resources and impeded the effectiveness of the institutional framework. The current institutional arrangement has to be changed to decentralise the water sector and address the rural needs.

Institutions that better understand the water needs of the rural community should be given priority within the overall water management structure. The

decentralisation of the water sector will enable institutions to allow stakeholders to participate in the water sector at the grass-roots level. It will permit the integration of poor households, hit hardest by water policy, into the decision-making process.

The current institutional arrangement creates a major challenge for water supply services, due to the geographical arrangement of the rural population. In order to solve this challenge, these services have to be managed by multiple stakeholders-such as NGOs, the private sector and public institutions to create a common approach to water coverage for all households.

It should be possible to apply this entire framework of analysis to any other study where institutions and policy form the main research focus, because policy will provides an environment for policy makers, involved in the water sector and those who use water to sustain water supply.

Given that the study methodology was not intended for generalising, any findings from here should be applied to other contexts only with caution etc. In this context, table 20 below sum up the revisions to the framework of analysis.

Table 20 Summary of revisions to the framework of analysis

Institutions	Water policy	Effect
• The focus will be on rural water supply by establishing strong rural water institutions or strengthening the existing ones. The institutions will need to be autonomous and free from state (government) influence. • The water institutions should be primarily formed of citizens rather than the state. The state should remain the facilitator in terms of legislation that governs the water sector, as part of the process of implementing water activities.	• The policy decision-making process in the water sector must be led by citizens in collaboration with other actors (e.g. the state, NGOs, the private sector). This will facilitate citizens' ownership of water policy. • Water policy needs to be a people-centred, not state led, initiative. When it is state-led, it is difficult to implement and achieve the intended objectives. • A synergy between a regulatory framework and its implementation	• The effect of policy on corruption should be avoided as much as possible, particularly in regard to permit accessibility. • It will be necessary to look into the cost of supplying water, in order to minimise the effects on access to water for the most vulnerable. • Water institutions need to promote self-reliance in terms of household water supply. • Water quality should be considered the key priority; it will be necessary to

• The institutions within the water sector must work together to strengthen collaboration; programmes must be harmonised and implemented with a common vision to improve water supply.	by water institutions must be created in order to strengthen the process of policy delivery in rural areas. Water policy should be designed to focus on the needs of rural people.	develop strategies on how to deal with water quality issues as a result of policy failure in the water sector.

Source: data analysis

The next chapter will discuss the study's contribution to existing literature on institutions and water policy roles, and a conclusion will be presented along with suggestions of areas for future research.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS

9.1 OVERVIEW

This is a study based on qualitative research of a small area of the Zambezi basin. It was not designed to be representative or generate findings that are generalizable. Therefore, any conclusions and recommendations must be considered with caution. However, to the extent that this area of Zambezi basin is typical of other such river basin in Africa and elsewhere, the findings have relevance.

The study was motivated by the pursuit and desire to understand water policy and the institutions involved, in order to determine the effect on poor people located in the Zambezi rural basin. The problems encountered by the water sector in developing countries has attracted significant attention in terms of meeting the water supply needs of people with low economic status. However, there is also an issue surrounding the lack of attention that policy and institutions have received regarding relevant policy and institutional discourse. Although institutions and policies have allegedly been designed and established, their application in the rural areas seems to have been inadequate, evidenced by the existence of water supply problems facing the rural population. Therefore, the issues and poor execution has led to this current study in order to investigate why the aforementioned problems are still persisting within the water sector. This chapter will present the major findings, implications and limitations of the study.

9.2 MAJOR FINDINGS

Based on the review of the literature in chapter 2, the identified research gaps, and the need to apply a suitable methodology to the study, the researcher used grounded theory methodology. Qualitative methods were employed to uncover contextual knowledge gained in relation to the Zambezi rural basin.

Given that this study is based on social constructionism as part of its methodologies, the ability to generalise is limited. We are mainly focusing on processes which can be generalised rather than specific findings (because only

a few villages were covered and even these were not selected in a representative manner etc.) The major findings of this study indicate that institutions emerged as a result of various concerns, including the inability of the water sector to meet the demands of the population in certain localities and other areas. The institutions were formed for a specific purpose to regulate the water sector in general to provide a suitable water supply and improve quality. The emergence also indicates that institutions in the water sector played a significant role in formulating and implementing the guidelines necessary to reinforce the policy framework, with the exception of the Village Water Committee, which had no regulatory power. Institutions have also been identified and deemed as being dysfunctional in the application of policies in the water sector, as is evidenced among institutions that were involved in the management of water and its supply in the Zambezi rural basin of Zambia. Institutions have so far been ineffectual in dealing with the speed of the reform process and the changing nature of the implementation of policies. This led to evaluating the effect of institutions to determine whether the presence of institutions is important during water sector reforms for the sustainability of rural water supply.

9.3 **WATER POLICY**

The study's findings indicate that water policy should correlate with the institutional framework, ensuring that the influence of one will directly have effect on the other, and vice versa. The policy framework tends to influence how the sector has to be managed, and consequently impact on the water sector, having an overall effect on service delivery of the water sector. There is an implication that the policy has not effectively contributed to the rural water sector and has therefore not been of benefit to the reform process; however, it should be noted that some progress has been made in this regard. For example, the establishment of water regulatory systems does not appear to have directly benefitted people with low economic status. The findings also indicate that the policy framework has had to forge a link between the effectiveness of institutions and policy in terms of the operation of the water sector, thereby creating inequalities in water supply between rural and urban areas.

The study demonstrates how the current regulatory system in the water sector is insufficient, meaning that it is unable to support the role of institutions within the water sector. The findings also demonstrate that the inefficiency of the water regulatory systems is at the core of policy failure in the Zambezi basin. The study also illustrates that the regulatory system is not sufficient to effectively drive forward the water sector in rural areas. Although the regulatory framework is ineffectual in the rural areas, it could potentially provide scope and opportunities for further improvement in strengthening the water sector in terms of water permits. Accessibility to water permit by the households will provide opportunities for the improvement of water supply because members of the communities will be able to own their water supply facilities in the rural areas, thereby developing good practice for how to maintain water facilities.

Analysis of the findings indicates that there is a need to reinforce the water system framework regulatory mechanisms in order to strengthen institutions which are adequately prepared to meet the water demands of rural people. The analysis also indicated the need for an effective regulatory framework, which has been recognised as an important instrument in supporting the water sector in general. Effective regulatory frameworks should support the on-going efforts of policy makers and regulators, in order to accomplish resilient water supply in the Zambezi rural basin of Zambia. If policy does not help to establish an effective regulatory system, it will hinder water service delivery development, as evidenced in the situation of Zambezi rural basin. The findings also indicated that the proposed conceptual framework has assisted in identifying areas in which policy makers and researchers can improve the water sector in developing countries. From this perspective, the findings reveal that water policy and institutions' adaptability in terms of water services remain a critical challenge which needs to be addressed by policy makers and academics.

9.4 WHAT ARE THE IMPLICATIONS FOR THE RESEARCH QUESTION?

The developed conceptual framework that has directed the research study's question mainly focused on improving understanding of how institutions

operating in the water sector are constructed and how they have performed in providing water services to the community in the Zambezi rural basin.

With the analysis of the study findings, it was possible for the study to generate exploratory insight into participants' perceptions about water sector institutions and policy. The results indicate that it is possible to explore meaning and refine it further with an expanded sample size. One of the major implications of this study is that the initial proposed conceptual framework can serve as a productive institutional framework from which to study policy and institutions in the water sector in more detail. The proposed conceptual framework has provided a very useful organisational schema for the study's implications in identifying the key effect of policy and institutions in the supply of water in the Zambezi rural basin.

The study moves the research towards a suitable convergent form of institutions because in convergent research, researchers pay attention to whether observations in social settings are generalised across similar studies. The extent to which patterns of findings are observed in this study could also be similar in another study in the same conditions. A number of aspects have served to allow the study to increase the reliability of the findings from the participants' accounts that, in fact, describe new insights (analysis of transcripts and articulation of more explicit descriptions of meaning of the components of conceptual framework in chapter 3) in line with the research question.

The second study implication is the methodological implication because the method used to understand the social reality on policy and institutions in this study was not new; it was used in a different way in order to specifically analyse data. The analysis method started with the identification of transcripts of interviews from the relevant sections of the exploratory ideas from the initial interview. The identification of relevant sections of interviews allowed for more targeted data analysis procedures aimed at improving the findings of the study. The method of breaking interview transcripts into statements of relevant meaning helped to form individual concept maps and then formed concept maps that were used again. Furthermore, the fact that the study's analysis method provided an opportunity to connect themes, and the meaning proved to be very fruitful when critiquing the finding of the study. The analysis method has

demonstrated that it is quite effective at targeting the perceptions of participants.

Contextually, the research study question provides a new insight, based on the perception that the Village Water Committee operates on a voluntary basis its voluntary nature partly contributes to the delivery of the water sector despite its limited role and absence of any legal status. Furthermore, regarding the National Water Supply and Sanitation Council (NWASCO), the research question implies that when the study was carried out, there was a perception that this type of institution was considered to be the main contributor in relation to the reform of the water sector and the implementation strategy. However, the findings indicate that despite the institutions playing a role as the main regulator, the role of institutions has to be expanded to include the supply of water and provision of water facilities in rural areas to improve the existing water situation.

Furthermore, there are specific dichotomies in existence between the findings of The Village Water Committee and NWASCO in relation to their meaningfulness. The roles of these two institutions in terms of performance have differed due to the degree of autonomy within the implementation of water sector services. The National Water Supply and Sanitation Council have a role specifically limited to regulation, while the Village Water Committee has no regulatory role at all. The NWASCO are not fully autonomous while the Village Water Committee is powerless in terms of autonomy. These two institutions also vary in terms of their functionality within the water sector, as well as their principle interests in the water service itself. These highlighted implications will impact on the analysis and outcomes of the study.

9.5 IMPLICATIONS FOR POLICY AND PRACTICE

This section discusses the key implications for policy and practice in order to better understand how the rural water sector could be improved. For the sake of clarity, both policy and practice will be discussed separately.

9.5.1 IMPLICATIONS FOR POLICY

The findings of the study are very clear for rural communities in the Zambezi rural basin that wish to develop effective and sustainable water supply facilities and improve the efficiency of water policy and institutions. Institutions should focus on creating conditions that allow households to play a prominent role in the water sector. The households' role is to participate in the water sector: to incorporate their needs into policy and to support efforts that strengthen water supply. Households have to be considered as the link that can transform water policy into practical terms. To begin with, the study findings offer key areas which require particular attention if water supply in the Zambezi rural basin is to be sustainable. Secondly, the study recognises that water policy and institutional efficiency are important; policy should aim to target households and individuals that suffer the effects of ineffective policy and dysfunctional institutions. Thirdly, the study recognises that the communities in the Zambezi rural basin have to be given priority in water policy and institutional design. However, it is necessary to point out that, even with this priority, no single institution has the necessary resources to completely eradicate water problems. Every study should recognise the need to collaborate with other agencies and key players to provide resources required to improve water supply. The primary difference between written water policy and implemented water policy is the status of water supply, accessibility and affordability among households. Institutions have to pay attention to the effectiveness of policy implementation to ensure households are adequately targeted in terms of the above.

9.5.2 IMPLICATIONS FOR PRACTICE

This study suggests that establishing effective water supply and institutions at the rural level is of paramount concern concerns to households. Policy that focuses on regulatory framework has to be re-examined in light of the realities and practices of the water sector. In this way, water supply will form an important part of the overall water policy framework.

Institutions have to be sufficiently funded in order to improve; this is especially true in the case of the Village Water Committee. The Village Water Committee

must have staffs that are responsible for ensuring policy works with respect to household needs. This remains an important element that can help institutions develop a well-functioning water system.

This research has found good evidence of promising water policies and practices which could be adapted and applied to other rural contexts. Water supply which is a key policy objective-was not highlighted in the water policy act; this has to be recognised within the policy framework to ensure a constant water supply for households. In practice, effective policy can speed up the process of accessing water and can plan long-term objectives. Institutions have to become more citizen-focused and implement a fair and cost-effective fee structure that will protect poor households.

To deal with corruption in the water sector, it is important for institutions to take legal and regulatory action: this can be through reducing the complexity of current regulation and making it more flexible, through implementing licensing and control, and through ensuring water policy reform is mainly led by the local water institutions.

The knowledge gained from this study can help in many ways. There is now data to provide an understanding of what is happening within the water sector, particularly for supporting poor households. Much of this study provides concrete evidence on policy and institutions. This information can be used to improve how water is managed at the rural level.

9.6 WHAT ARE THE IMPLICATIONS FOR FURTHER ANALYSIS AND RESEARCH?

Firstly, it is necessary to examine the roles of the Village Water Committees operating in similar environments that have been given legal status. Such an examination would determine how these other Village Water Committees have performed in the delivery of water within the sector. This examination would be desirable as this particular research study has only examined a Village Water Committee with no legal status, autonomous power and no role to play in the water sector. In this particular context, it is also necessary to analyse national

institutions such as the National Water Supply and Sanitation Council with broader mandates in order to carry out a comparison with The Village Water Community in terms of policy performance in order to evaluate the effectiveness of institutional implementation strategies.

Secondly, the national institutions should also be analysed in order to assess if their institutional framework is solid enough to improve the water service delivery in the rural areas. This chapter has demonstrated how the roles of institutions are critical within the delivery of water services. Both institutions examined in this study have the potential to improve the water sector and also strengthen the regulatory framework in the Zambezi rural basin or in similar contexts. In the case of the Village Water Committee, participants have showed preference to this institution rather than to the main institution's (National Water Supply and Sanitation Council) rural water service provision. However, the Village Water Committee in its current status is constrained within the current policy framework.

In line of the implications of the study, we are of the view that the eight principles explained in Ostrom paper(1999) and refer in this study have a significant role to play in the management of common pool of resources including the water sector, we believe that in the context of institutions in the rural Zambezi of Zambia, when institutions manage water resources as a common resource, there is possibility to serve the community with water supply.

9.7 STUDY LIMITATIONS AND FUTURE AREAS OF RESEARCH FOCUS

9.7.1 STUDY LIMITATIONS

The analysis of the research study discussed in chapter 3 does reflect limitations regarding the methodology employed. The limitations were explained extensively, highlighting the entire process of the data collection in order to find out the reality of the Zambezi rural basin, with reference to the roles of institutions and the impact of policy from the perspective of two institutions as well as members of the households with low economic status. The data analysis was carried out in relation to the evidence gathered from the documentation: namely, the literature review, interviews and field observations. The process of

data validation was performed through the use of triangulation methodology, and achieved through data handling. The data was cross checked for consistency of the meanings, as previously mentioned in chapter 4. It is important to indicate that, during the data analysis, the researcher had little time to show data to members of the two institutions and households leaderships. If the analysed data had been subjected for comments, clarification of meanings could have been obtained. The researcher holds the view that this limitation gap meant that the study did not address the issue of time framework to obtain the necessary feedback from participants; therefore, the study has identified a research methodology. However, this research methodology could be built upon in future studies in order to improve the validity and reliability of the study's findings. Although it was not the intention to operate in this direction, it could have been advisable for the research thesis to have been made available to the leaders of the two institutions in question in order for them to validate the gathered data and research findings. Making the thesis accessible to the leaders of the institutions could have generated very useful dialogue. As mentioned in chapter 3, the identified gaps in terms of data limitation will be dealt with through the process of constant engagement in carrying out other studies to address this particular study's limitations.

In acknowledging such limitations, this study do displays an effective comprehension of institutions towards water supply. Accordingly, the study confirms the developed framework. This also highlights how institutions should be given a new impetus to build their strengths in the rural communities in terms of policy implementation for water supply in a rural setting.

9.7.2 FUTURE AREAS OF RESEARCH

While this thesis has generated valuable knowledge on and insight into water policy, institutions' relation to it, and the effect access to water has on poor citizens in rural areas, the results have also pointed out the need for further research.

Commencing with the management of water policy, the general conclusion regarding policy is that it should be tested for validity by examining water policy in a larger number of countries in Africa, or indeed on any other continent.

There may also be a need to evaluate the management of water policy more thoroughly in countries sharing the same river basin water resources, such as the Zambezi river basin in the southern Africa region. For example, through extending the scope and objectives of the current study and identifying all main stakeholders who have an important role in the management of the water sector and those who do not have an upper hand in the management of this sector, as well as investigating the efficiency of water policies of countries in order to understand why other countries have done well and others have not in supporting the rural water supply. It would be necessary to explore the roles that water policy has in other countries. For instance, to determine whether the sources of poor water supplies or a lack of water supply are the result of water policy. Also, it would be important to determine whether the improved supply is a direct result of policy implementation in rural areas, particularly in those areas where there is improvement in the supply of rural water due to the community's efforts in the improvement of the water supply. Furthermore, it could also be beneficial to consider how the issue of water corruption could be analysed in the context of rural communities and what the policies needed to minimise its effect in the water sector would be.

With regard to institutional arrangements, the study has offered a number of options for future research in this key area. For instance, studies could be carried out in greater depth, which would help examine not only the formal institutional changes but would also help capture more informal institutional changes to practice. There may also be a need to establish the effectiveness of the institutional arrangements which have been formed as a result of water policy implementation. This will lead to an investigation of the effectiveness of a regulatory framework for the rural water sector. Within institutional arrangements, the roles of institutions and the effect of water policy will also need to be examined in greater detail, taking into account the effects of institutional arrangements.

With regard to gender, it would be interesting to study how gender effect on formal and informal institutions and how they deliver water to communities. As already mentioned in this study I was not able to explore this important area of investigation.

The next section discusses the contributions of the study to knowledge and experience.

9.8 CONTRIBUTIONS OF THE STUDY

The study has made significant contributions in institutionalism research in a number of ways.

The study has permitted the development of a theoretical / conceptual framework under a new empirical research setting drawn from existing theories. The theoretical / framework was developed to satisfy the necessary conditions prevailing in the water sector with a designed level of fit to the collected data. This confirms the study contributions in all aspects. However, the examination of the core findings comes across with detailed conditions coherently and distinctively.

Fundamentally, from the theoretical perspective, the study has used the institutional theories, theories on policy and other arguments on effect as a basic framework to gain better understanding of water in the rural context.

The qualitative interview data has contributed to the understanding of the knowledge and experience on institutions, water policy and effect in a developing context. The study strived to fill the conceptual gap in the existing literature. The theoretical development and empirical testing of the theories in the field of institutionalism has been based on developing country context. On the other hand, understanding institutional behaviour from another developing country which has an advanced rural water institution and coherent policy is equally important for clear comprehension of the phenomena for academics, and policy makers. In this context, table 21 below provides a brief summary of the major contributions of the study.

Table 21: Contributions of the study

Theoretical contributions To:	Key comments
The significance of the rural water institutions, and water policy.	Emphasising on the needs for rural water institution process in examining its role in rural water supply contribute to the institutional theory. According to the knowledge of the researcher, this is done for the first time in the research study because many studies have provided studies institutional theory in the context of urban area when it comes to institutions and policies in the water sector. Investigating the water institutions and policy separately has provided insight to the way rural water is managed in specific context. It is also vital to institutional theory.
Contribution to body of knowledge: using qualitative method	Key comments
Contextual contributions of the study to water institutions, water policy and effect	This validates the existing findings from different research studies and provides new insights to the theory of new institutionalism in the water sector. The study provides fresh empirical affirmation in the literature from a new context of

	investigation. In this context, these fresh contributions obtained from qualitative findings are significantly adapted to the proposed conceptual framework discussed in this study. Effect of institutions and policy generated knowledge and acquired experience from the study provide support to the study conceptual framework proposed.
Additional insights	The researcher is of the view that these insights have provided fresh realistic viewpoint of reinforced concepts as articulated by policy makers, rural households and the community at large as they perceived from their own experiences in the studied field.

The next section discusses a self –reflection on my PhD journal in order to share some of the experience with other colleagues still in involved in the research

9.9 SELF-REFLECTION ON THE PHD STUDIES

By writing a self-reflection on the researcher PhD studies the researcher do not intend to provide a model for other PhD students to follow; instead, the researcher intends to specifically reflect on his personal experiences of his PhD (doctorate of philosophy) studies.

In this personal reflection, it is important to reflect on the personal strategies and attributes which enabled the researcher to effectively manage the thesis writing process. Over the course of the three years of the researcher PhD studies, took to complete the studies, the researcher approach to critical analysis, personal attitudes towards himself and his personal life and how the researcher see the world were transformed. Researcher PhD studies stretched his intellectual capabilities due to the significant amount of work and intellectual skill required to conduct qualitative research using the grounded theory methodology. It also taught the researcher about planning, organisation and scheduling activities, as well as balancing his personal life with the demands of thesis writing.

In this reflection, the researcher drew particular attention to one aspect of the PhD process, the writing-up stage, and also discuss his learning experiences in relation to the writing of the thesis.

Doing a PhD is a serious business because it requires a student to be committed to up to three years of study. It is expensive in terms of time and finance, particularly when it comes to field research and supervision. It can also impact on personal health and social relationships, but it can also be a rare opportunity to boost personal and academic development and improve intellectual capacity and employment opportunities. The process of the researcher PhD is explained as follows:

At graduate school, during this period, the researcher personally considered the graduate studies as a year marking a transitional and transformative period in

his life which saw him grasp key concepts surrounding the philosophy of research, data collection and analysis, the research design and the literature review. While at graduate school, the researcher became aware of how demanding a PhD is and saw that the research process required extensive hard work concentrated over long period of time (three years).Although the researcher appreciated the challenges involved, it was at this point that the researcher realised that his was ready to undertake a PhD.

At graduate school, the researcher developed a methodology and a literature review as a first step towards transferring from a master's degree in philosophy to a PhD. The transfer stage helped the researcher to clarify his topic and made him realise that he wished to incorporate the issue of policy and institutional impact into his PhD research. This change researcher original topic which was on water policy and food security saw him revise the literature review and change the conceptual framework of the research, and it took the researcher two months to get this revision process right. While at graduate school, the researcher learned many skills from workshops, e-mail discussions with fellow PhD students and researcher supervisors, reading and note taking. The researcher became self-directed, self-motivated and self-reliant. As a result of the researcher social isolation, the researcher decided it was important to develop a system that would allow him to balance the work and family responsibilities in order to strengthen his personal commitment and ensure his sanity throughout the long period of PhD study.

The researcher developed a reference library and began scheduling PhD activities and sorting out references and entering them into personal database. The researcher used this database when conducting the literature review and writing up the thesis. During this period, the researcher felt that he I needed to access a broader selection of literature on policy, institutions and their impacts, but access to relevant literature was very limited. During the initial stage, the researcher considered the PhD a monster which had taken over personal life. However, in order to address the challenge of completing the PhD studies, the researcher developed an approach which was based on the thesis writing stage. I started writing my thesis in 2012 after the fieldwork, and struggled with the first two chapters (the literature review and methodology) for almost four

months. The researcher drafted and redrafted using comments from supervisors, but the researcher went off tangent and gradually lost confidence in the writing ability. This was a great challenge. There was a mismatch between how the PhD articulated the research questions and problems and how it presented the data interpretation and analysis, and after a long struggle, and with the help of comments from supervisors, the researcher managed to fold all the research questions into one key research question which then became the focus of the PhD. The researcher had not been aware that the writing-up stage was the most challenging in terms of clarifying what the PhD was about and what its intended outcomes were, as well as in terms of contributing to the expansion of knowledge around the field.

With regards to the literature review, the comments and feedback from supervisors helped the researcher to devise a research plan for a critical literature review. The researcher was able to understand the process of writing a scholarly literature review based upon three key areas: outlining what is already known about the research field; reinforcing the arguments in support of the research being undertaken; and clarifying how the thesis will contribute to the development of new knowledge. From researcher experience of researching a PhD, the researcher can say that one way to construct a critical literature review is to ensure that researcher has developed ways to address examples and themes which are important to the field and will contribute towards the development of new knowledge and practices. The researcher has also learned about the power of simple language, and the importance of avoiding jargon and clichés which might distract the reader and lessen the power of the thesis' narrative. The researcher has become conversant in a range of skills and has become dynamic, courageous and active, which has allowed the researcher to consider academic goals. The researcher has become more aware of the importance of linking and sequencing and cohesive language, and how these help to transcend all levels of the thesis writing process in order to make each chapter link smoothly to the next one.

In the future, if the researcher was to do another PhD focused on another research area, the researcher would not follow the original approach in terms of research used before starting the PhD because doing so would cause delays

and limit researcher study time. In addition, the researcher would use the literature review to determine the level of the knowledge available in the field being studied; this experience would help the researcher in future research studies to be been better equipped to focus on the research questions and objectives and developed a superior understanding of the field itself. This was one key area which the researcher did not take into account when decided to undertake the PhD studies. However, overall the learning experience has been rewarding.

During the PhD studies, the researcher learned (and continue to learn) what it takes to overcome the challenges involved with meeting the demands of a PhD. The researcher feels that he has become a very different person in terms of academic knowledge and expertise, as well as skills. The writing of this PhD made a significant contribution to researcher personal growth, but choosing to do a PhD was not an easy path to take.

References

ABERNETHY (1996) 'The institutional framework for irrigation', Proceedings of a workshop held in Chiang Mai, Thailand, 1–5 November 1993, Colombo, Sri Lanka: Irrigation Management Institute.

ADELMAN, I. and HEAD, T.F. (1983) 'Promising developments for conceptualizing and modelling institutional change', University of California-Berkeley working paper no. 259.

ADGER, W. (2003) 'Social Aspects of Adaptive Capacity', in J. Smith, R. Klein and S. Huq (eds.), *Climate Change, Adaptive Capacity and Development*, London: Imperial College Press.

AFRICA WATER TASK FORCE (2002a) 'Water and Sustainable Development in Africa: Regional Stakeholders', Conference for Priority Setting, Accra–Ghana 15–17 April 2002, International Water Management Institute, Pretoria, South Africa.

AFRICA WATER TASK FORCE (2002b) 'Water and Sustainable Development in Africa: a Position Paper', International Water Management Institute, Pretoria, South Africa.

AFRICAN DEVELOPMENT FUND (ADF) (2006) 'National Rural Water Supply and Sanitation Programme (NRWSSP): Zambian Appraisal Report', Tunis: African Development Fund.

AFRICAN INFRASTRUCTURE COUNTRY DIAGNOSTIC (AICD) (2010) 'Water Supply and Sanitation Survey Database', 895 [online], available at: www.infrastructureafrica.org:Online (accessed 27 January 2011).

AKHMOUCH, A. (2012) 'Water Governance in Latin America and the Caribbean: A Multi-Level OECD Regional Development Working Paper 2012/04', OECD Publishing.

AMERY, H.A. and WOLF, H.A. (2000) *Water in the Middle East*, The University of Texas Press, Austin.

ARIEL, D. and JOSE, A. (2009) *Policy and Strategic Behaviour in Water Resource Management*, Earth Scan: London.

ARRIENS, W.L., BIRD, J., BERKOFF, J. and MOSLEY, P. (1996) 'Towards effective water policy in the Asian and Pacific Region', (three volumes) Proceedings of the Regional Consultation Workshop, 10–14 May 1996, Manila, Philippines. Manila: Asian Development Bank.

ANAND.P.B. (2010) *Scarcity, Entitlements and the Economics of Water in Developing Countries*, Edward Elgar: USA

BAIETTI, A., KONGDOM, W. and GINNEKEN, M. (2006) 'Characteristics of well–performing public water utilities', Water Supply and Sanitation Working Notes, Note No. 9.

BAKKER, M.R., BAKER, R.S., MEINZEN, D. and KONRADSEN, F. (1999) 'Multiple Uses of Water in Irrigated Areas: A Case Study from Sri Lanka', SWIM Report 8, International Water Management Institute, Colombo.

BANDARAGODA, D. J. and REHMAN, S.U. (1995) 'Warabandi in Pakistan's canal irrigation systems: Widening gap between theory and practice', IIMI Country Paper Pakistan No. 7, Colombo, Sri Lanka: International Irrigation Management Institute.

BANDARAGODA, D.J. and FIRDOUSI, G.R. (1992) 'Institutional factors affecting irrigation performance in Pakistan: Research and policy priorities', IIMI Country Paper – Pakistan No. 4. Colombo, Sri Lanka: International Irrigation Management Institute.

BANERGJEE, S., FOSTER, V., YING, Y., HEATH, S. and WODON, Q. (2008) 'Cost recovery, equity and efficiency in water tariffs: Evidence from African utilities', Africa Infrastructure Country Diagnostic, Working Paper No. 7. Washington, DC: World Bank.

BASHAH, T., KOPPEN, B.V., MERREY, D., LANGE, M.D. and SAMAD, M. (2002) 'Institutional alternatives in African smallholder irrigation: Lessons from international experience with irrigation management transfer', Colombo, Sri Lanka: IWMI, p. 24 (IWMI research report 60).

BASSON, M.S. (2010) 'Assessment of the Ultimate Potential and Future Marginal Cost of Water Resources in South Africa', Department: Water Affairs, Report No. PRSA 000/00/12610, September 2010.

BASSON, M.S. and VAN ROOYEN, J.A. (2001) 'Practical Application of Probabilistic Approaches to the Management of Water Resources'*, Journal of Hydrology*, vol. 241, Issues 1-2, January 2001.

BATLEY, R. (2004) 'The Politics of Service Delivery Reform, Development and Change', vol. 35, no.1.pp 31-56.*Institute of Social Studies published by* Blackwell publishing: Oxford

BAUER, C.J (1988) 'Slippery Water Rights: Multiple Water Users and the Neo-Liberal Model in Chile, 1981–1995', *Natural Resources Journal*, vol. 38, no. 109.

BAUER, C.J (1989) *Against the Current: Privatization, Water Markets and the State in Chile, Dordrecht*, Kluwer Academic Publishers.

BAUER, C.J. (1997) 'Bringing Water Markets Down to Earth: The Political Economy of Water Rights in Chile, 1976–1995', *World Development*, vol. 25, no. 5, pp. 639–56.

BAUER , C.J. (2005) 'Siren Song: Chilean Water Law as a Model for International Reform', Washington, D.C.: RFF Press.

BAYLISS, K. (2003) 'Utility privatisation in sub–Saharan Africa: A case study of water', *Journal of Modern African Studies*, vol. 41, no. 4, pp. 507–531.

BAYLISS, K. and MCKINLEY, T. (2007) 'Privatising basic utilities in sub-Saharan Africa: The MDG impact', UNDP Research Brief No. 3. Brasilia: International Poverty Center, United Nations Development Programme (UNDP).

BEIGER, P.L. and LUCKMANN, T. (1996) *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, Anchor Books: Garden City: New York.

BERDI, D.R. and ANDERSON, J.F. (1974) *Questionnaire design and use*, Metuchen, NJ: Scarecrow.

BERKOFF, D.J.W. (1997) 'Water Resources Functional Analysis', Consultancy report prepared for the Water Resources Secretariat, Colombo, Sri Lanka.

BERNDTSON, C.J. and HYYNEN, I. (2002) *Are there sustainable alternatives to water–based sanitation system? Practical Illustration and Policy Issues*, Department of Water Engineering, University of Lund.

BERRY .K, A.B. and MOLLARD .E (2010) *Social Participation in Water Governance and Management: Critical and Global Perspectives*, Earth Scan: London.

BHATIA, R. and FALENMARK, M. (1992) 'Water resource policies and the urban poor: innovative approaches and policy imperatives', Background paper prepared for the ICWE, Dublin, 26–31 January 1992.

BHATIA, R., CESTI, R. and WINPENNY, J. (1994) 'Policies for water conservation and re–allocation: good practice cases in improving efficiency and equity', World Bank Technical Paper.

BISWAS, A.K. (1994) *International Waters of the Middle East*, Oxford: Oxford University Press.

BISWAS, A.K. (1997) *Core and Periphery. A Comprehensive Approach to Middle Eastern Water*, Oxford: Oxford University Press.

BISWAS, A.K. (2001) 'Water Policies in the Developing World', *Journal of Water Resources Development*, vol. 17, no. 41, pp. 489–99.

BLACKMAN, A., HOFFMAN, S., MORGENSTERN, R. and TOPPING, E. (2004) 'Assessment of Colombia's national environmental system', Resources for the Future draft final report.

BLOMGUIST, W. (1992) *Dividing the Waters: Governing Groundwater in Southern California*, San Francisco, California: ICS Press.

BOELENS, R. and HOOGENDAM, P. (2002) *Water Rights and Empowerment*, Assen, Netherlands: Van Gorcum.

BOGDAN, R. and TAYLOR, S.J. (1975) *Introduction to Qualitative Research Methods: A Phenomenological Approach to the Social Sciences*, New York: John Wiley.

BOND, P. (2004) 'Water commodification and decommodification narratives: Pricing and policy debates from Johannesburg to Kyoto to Cancun and back', *Capitalism Nature Socialism*, vol. 15, no. 1, pp. 7–25.

BOND, P., MCDONALD, D. and RUITERS, G. (2002) 'Water privatisation in SADC: The state of the debate', Municipal Services Project Paper Series [online], available at: www.queensu.ca/msp (accessed 18 June 2007).

BOTES, A., HENDERSON, J., NAKALE, T., NANTAGA, K., SCHACHTSCHNEIDER and SEELY, M. (2003) 'Ephemeral Rivers and Their Development: Testing an Approach to Basin Management Committees on the Kuiseb River, Namibia', *Physics and Chemistry of the Earth*, vol. 28, no. 20–27, pp. 853–58.

BOW, P., KATHERINE, B. and KATRYN, F. (2011) 'Making Progress on Global Water Sanitation and Hygiene (WASH) Challenges', Washington D.C.: Center for Strategic and International Studies (CSIS).

BRAADBAART, O. (2005) 'Privatizing Water and Wastewater in Developing Countries: Assessing the 1990s Experiments', *Water Policy*, vol. 7, no. 4, pp. 329–44.

BREWER, J.D. (2002) *Ethnography,* Buckingham: Open University Press.

BRINCENO-GARMENDIA, C., SMITH, K. and FOSTER, V. (2008) 'Financing Public Infrastructure in Sub–Saharan Africa: Patterns and Emerging Issues', Africa Infrastructure Country Diagnostic (AICD) Background Paper No. 15. Washington, DC: World Bank.

BRINKERHOFF , D.W. and GOLDSMITH, A. (1992) 'Promoting the Sustainability of Development Institutions: A Framework for Strategy', *World Development*, vol. 20, no. 3, pp. 369–83.

BRINKERHOFF F, D.W. and CROSBY, B.K. (2002) *Managing Policy Reform. Concepts and Tools for Decision-Makers in Developing and Transition Countries*, Bloomfield: Kumarian Press.

BRISCOE, J. (1994) *Implementing the New Water Resources Policy Consensus: Lessons from Good and Bad Practices,* Washington D.C.: The World Bank.

BRISCOE, J. and DAVID, F. (1988) Water for Rural Communities: Helping People Help Themselves. Washington, D.C.: The World Bank.

BROMLEY, D.W. (1982) 'Land and water problems: An institutional perspective', *American Journal of Agricultural Economics, vol. 64, pp. 834–44.*

BROMLEY, D.W. (1987) *'Irrigation institutions: The myth of management', in Water and water policy in the world food supplies, ed. Wayne R. Jordan, College Station,* USA: Texas University Press*.*

BROMLEY, D.W. (1989) *Economic Interests and Institutions: The Conceptual Foundations of Public Policy,* New York: Basil Blackwell*.*

BRUNS, B.R. (2004) 'From Voice to Empowerment: Rerouting Irrigation Reform in Indonesia' in P.P. Mollinga and A. Bolding (eds.), *The Politics of Irrigation Reform: Contested Policy Formulation and Implementation in Asia, Africa, and Latin America*, Hans, UK: Ashgate.

BRUNS, B. and MEINZEN-DICK, R. S (2003) 'Frameworks for water rights: an overview of institutional options', Keynote paper presented at International Working Conference Water Rights: institutional options for improved water allocation, Hanoi Vietnam 12–15 February 2003, Washington: International Food Policy Research Institute.

BRUNS, B.R. and MEINZEN-DICK .R.S (2000) *Negotiating Water Rights*, London: Intermediate Technology Press.

BRUNS, B.R. and MEINZEN-DICK,.R.S. (2005) 'Framework for Water Rights: An Overview of Institutional Options', in B.R. Bruns, C. Ringler and D.R.S. Meinzen. (eds.), Water *Rights Reform: Lessons for Institutional Design*, Washington, D.C.: International Food Policy Research Institute.

BRUNS, B.R., RINGLER, C. and MEINZEN-DICK .R. (2005) *Water Rights Reform: Lessons for Institutional Design*, Washington, D.C.: International Food Policy Research Institute.

BUCKALL, J., KLYTCHNIKOVA, J.I., LAMPIETTI, J., LUNDELL, M., SCATASTA, M. and THURMAN, M. (2001) *Irrigation in Central Asia: Where to Rehabilitate and Why,* Washington, D.C.: World Bank.

BULLOCH, J. and DARWISH, A. (1993) *Water Wars*, London: Gollancz.

BURR, V. (1995) *An Introduction to Social Constructionism*, London: Routledge.

BURTON, M. and MOLDEN, D.J. (2005) Making Sound Decisions: Information Needs for Basin Water Management" In M. Svendsen, ed., *Irrigation and River Basin Management: Options for Governance and Institutions*, Wallingford, UK: CABI Publishing.

BUTTEL, F. (1997) 'Social Institutions and Environmental Change', in M. Redclift and G. Woodgate (eds.), *The International Handbook of Environmental Sociology*, Cheltenham, UK: Edward Elgar.

CAI, X. YANG, Y.E., ZHAO, J. and RINGLER, C. (2011) 'Can Water Allocation in the Yellow River Basin be improved? Insights from a Multi agent System Model', International Food Policy Research Institute (IFPRI) Discussion paper 1117, Washington D.C.

CARRASCO, E.R. (1995) 'Autocratic Transitions to Liberalism: A Comparison of Chilean and Russian Structural Adjustment', *Transnational Law and Contemporary Problems*, vol. 5, no. 99, pp. 104–06

CERNEA, M.M. (1987) 'Farmer organization and institution building for sustainable development', *Regional Development Dialogue*, vol. 8, no. 2. Nagoya, Japan: United Nations Center for Regional Development.

CHANDIWANA, S.K. and SNELLEN, B. (1994) 'Peem River Basin Series 2: Incorporating a Human Health Component into the Integrated Development and Management of the Zambezi River Basin', Peem Secretariat, Geneva: World Health Organization.

CHARKASI, D. (2000) *'Water Working Group Survives Regional Political Challenge'*, *Jordan Times*, 20 March.

CHARMAZ, K.(2006) *Constructing grounded theory: a practical guide through qualitative analysis.* Sage: London

CHENJE, M. and JOHNSON, P. (1996) *'Water in Southern Africa'*, SADC, IUCN, SARDC CEP, Maseru/Harare.

CHIH, H.S. (2003) 'Interviewing in place: The socio-spatial construction of interview data', National Institute for Social Work: London.

CHILESHE, P., TROTTIER, J. and WILSON, L. (2005) *'Translation of Water Rights and Water Management in Zambia', International Workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa*, pp. 26–28, January 2005, Johannesburg, South Africa.

CHINJE, M. and JOHNSON, P. (1997) 'Water in Southern Africa'. IUCN-ROSA

CHITONGE, H. (2007) *Service providers interviews on* CD.

CLEAVER .F., FRANKS .T., MAGANGA . F., and HALL.K(2013) ' *Beyond negotiation?': Real governance, hybrid institutions and pastoralism in the Usangu Plains, Tanzania*. Department of Geography: King's College: London

CHITONGE, H. (2010) 'Who is cross-subsidising whom? Water supply cross subsidisation policy, practice and lessons from Zambia', *Journal of Modern African Studies*, *vol. 48, no. 4, pp. 599–625.*

CHIUTA (2002) 'Defining and Mainstreaming Environmental Sustainability in Water Resource Management in Southern Africa', SADC, IUCN, SARDC, IUCN, SARDC, World Bank: Maseru/Harare/Washington DC.

CHOLA, P. (2003) 'Integrated water resource management in Zambia', paper presented at the National Stakeholder Consultation Forum, Water Resource Action Programme, Lusaka, 17–18 November 2003.

COCQ, K. (2005) 'There is still no alternative: The beginning of water privatisation in Lusaka', in D. McDonald and G. Ruiters (eds) *The age of*

commodity: Water privatisation in southern Africa, pp. 240–57, London: Earthscan.

CONNELL, D. (2010) 'Sustainability and the National Water Initiative', available for download at: http://cweep.anu.edu.au/pdf/publications/research_papers/10–06_NationalWater.pdf:Online:Available (accessed October 2012).

COOK, P. and KIRKPATRICK, C. (1995) Policy and Performance: International Perspectives, Prentice Hall, Harvester Wheatsheaf, Great Britain.

COWARD, E.W. and JR (1986a) 'Direct or Indirect Alternatives for Irrigation Investment and the Creation of Property', in K.W. Easter, ed., *Irrigation Investment, Technology and Management Strategies for Development*, Boulder, Colo and London: Westview Press.

COYAUD, D.P. (1988) 'Private and Public Alternatives for Providing Water Supply and Sewerage Services', World Bank INU Report No. 31, Washington, D.C.

CRAIG, J. (2000) 'evaluating privatisation in Zambia: A tale of two processes', *Review of African Political Economy*, vol. 85, pp. 357–66.

CRASE, L. and O'KEEFE, S. (2008) 'Acknowledging Scarcity and Achieving reform' in *Water Policy in Australia: The Impact of Change and Uncertainty*, L. Crase (ed.), Washington, D.C.: Resources for the Future.

CRASE, L. and O'KEEFE, S. (2009) 'The Paradox of National Water Savings: A Critique of Water for the Future', *Agenda*, vol. 16, no. 1, pp. 45–60.

CRESWELL, J.W. (2003) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Thousand Oaks, CA: Sage Publications.

CSO (2010) 'Living Conditions Monitoring Survey Report 2006', Lusaka: Zambia

DAGDEVIREN, H. (2008) 'Waiting for miracles: The commercialisation of urban water services in Zambia', *Development and Change*, vol. 39, no. 1, pp. 101–21.

DAGDEVIREN, H. and ROBERTON, S.A. (2009) 'Reforming Without Resourcing: The Case of the Urban Water Supply in Zambia', International Poverty Centre, Policy Brief Paper No.4.

DAHAN, M. and NISAM, U. (2007) 'Unintended consequences of increasing block tariffs under increasing block rates for water', *Water Resources Research*, vol. 43, no. 3, pp. 1–10.

DAVID, S. (2005) *Interpretation Qualitative Data: Methods for Analysing Talks, Text and Interaction*, 2nd edition, London, Thousand Oaks, New Delhi: Sage Publications.

DAVIS, G.F., DOUG, M.W., SCOTT, R. and MAYER, N.Z. (2005) *Social Movements and Organization Theory*, New York: Cambridge University Press.

DAWSON, C. (2002) *Practical Research Methods,* New Delhi: UBS Publishers' Distributors.

DE LANGE, M. (2004) 'Water Policy and Law Review Process in South Africa with a Focus on the Agricultural Sector', in P.P. Mollinga and A. Bolding (eds.), *The Politics of Irrigation Reform: Contested Policy Formulation and Implementation in Asia, Africa and Latin America*, Hans, UK: Ashgate.

DENZIN, N.K. and LINCOLN, Y.S. (2008) 'Collecting and interpreting qualitative materials', 3rd ed., Thousand Oaks, CA: Sage.

DEVOLUTION TRUST FUND (DTF) (2004) 'Water for the urban poor in Zambia: Water kiosks in peri-urban and low-cost areas', An evaluation report on two DTF pilot projects in Kitwe and Chingola, January 2004, Lusaka: DTF/NWASCO.

DIRKESEN, W. and HUPPERT, W. (2006) Irrigation Sector Reform in Central and East European Countries, Eschborn, Germany: Deutsche Gesellschaft für Technische Zusammenarbeit.

DOUGLAS, J. (1985) *Creative interviewing*, Newbury Park, CA: Sage.

DOUGLAS, M. (1987) *How Institutions Think*, London: Routledge.

DTF (2006) 'Aquatic information system: Water and sanitation on the urban poor' (DVD) Lusaka: DTF.

DUBE, D. and SWATUKI, L.A. (2002) 'Stakeholder Participation in the New Water Management Approach: a Case Study of the Save Catchment, Zimbabwe. *Physics and Chemistry of the Earth*, vol. 27, pp. 867–74.

DUBLIN STATEMENT ON WATER AND SUSTAINABLE DEVELOPMENT (2010) 12 January 1992, Dublin, Ireland, available at: www.un–documents.net/h2o–dub.htm (accessed 17 June 2010).

DUNGUMARO, E.W. and MADULU, N.F. (2002) 'Public participation in integrated water resources management: the case of Tanzania', Paper presented at the 3rd Water net/ WARFSA symposium, *Integrating water supply and water demands for sustainable use of water resources*, Dar Es Salaam. 30–31 October 2002.

EASTER, K.W., ROSEGRANT, M.W. and DINAR, A. (1998) *Markets for Water: Potential and Performance*, Boston, Mass.: Kluwer Academic Publishers.

EHRHARDT, D. and JANSON, N. (2010) 'Can regulation improve the performance of government controlled water utilities?' *Water Policy*, 12, pp. 23–40.

ESTACHE, A. and ROSSI, M. (2002) 'How different is the efficiency of public and private water companies in Asia?' *World Bank Economic Review*, vol. 16, no. 1, pp. 139–48.

ESTERBERG, K.G. (2002) *Qualitative Methods in Social Research*, London: Sage.

FOOD and AGRICULTURE ORGANISATION OF THE UNITED NATIONS(FAO 1995) 'Reforming Water Resources Policy: A Guide to Methods and Practices', Rome.

FOOD and AGRICULTURE ORGANISATION OF THE UNITED NATIONS (FAO1996) 'Water Sector Policy Review and Strategy Formulation: A General Framework', Rome.

FARAGUI, N., BISWAS, A. and BINO, M. (2001) *Water Management in Islam*, United Nations University Press: Tokyo–New York–Paris.

FAYSSE, N. (2004) 'An Assessment of Small–Scale Users' Inclusion in Large-Scale Water Users Associations of South Africa', IWMI Research Report 84, Colombo: International Water Management Institute.

FELDEMAN, L.D. (2007) *Water Policy for Sustainable Development* The Johns Hopkins University Press: United States of America (USA).

FINE, M., WEIS, L., WESEEN, S. and WONG, W. (2003) 'For Whom? Qualitative Research, Representations and Social Responsibilities' in N.K. Denzin and Y.S. Lincoln (eds.) *The Landscape of Qualitative Research,* Thousand Oaks, Sage.

FISHER, M. (1995) 'The Economics of Water Dispute Resolution, Project Evaluation and Management: an Application to the Middle East', *Water Resources Development*, vol. 11, no. 4.

FLICK, U. (2009) *an Introduction to Qualitative Research,* London: Sage.

FORESTER, J.F. (1999) *The Deliberative Practitioner: Encouraging Participatory Planning Processes*, Boston, Mass.: MIT Press.

FOSTER, T. (2012) *A Desk Study for Water for People: Private Sector Provision of Rural Water* [online] Available at: *Services.http*://www.tap.water for people.org.user content/12/229 (accessed on 03/02/2013).

FOSTER, V. (2005) 'Ten years of water service reform in Latin America: Toward an Anglo-French model', Water Supply and Sanitation Sector Board Discussion Paper Series, No. 3. Washington, DC: World Bank.

FRANCEYS, R. (2000) 'Water and Public-Private Partnership', 2nd World Water Forum, 17-22 March, The Hague.

FREDERICKSON, H. (1992) 'Water Resources Institutions', World Bank Technical Paper, no. 191, Washington D.C.

FUNDANGA, C. and MWAMBA, A. (1996) 'Privatization of public enterprises in Zambia: An evaluation of policies, procedures and experiences', Economic Research Papers No. 35. Tunis: African Development Bank.

FANT, C., GIBRETSADIK,Y. and STREZEPECK, K. (2013) 'Impact of climate change on crops, irrigation and hydropower in the Zambezi river basin', Working paper, Helsinki: Unu-wider.

GIBBONS, D.C. (1986) 'The Economic Value of Water: Resources for the Future: Resources for the Future', Washington DC.

GILBERT, N. (2001) *Researching Social Life*, London, Sage.

GILLARD, J. and REES, N. (2009) Memorandum of Understanding in Relation to Water for the Environment, signed 23 September 2009 between the State of New South Wales and the Commonwealth of Australia.

GLASER, B. (1978) 'Theoretical Sensitivity' Sociological Press, Mill Valley, AC

GLEICK, P.H. (2009) *The World's Water 2008–2009, The Biennial Report on Freshwater Resources*, Pacific Institute for Studies in Development, Environment and Security, Washington D.C.: Island Press.

GLEICK, P.H., WOLFF, G., CHALECKI, E.L. and REYES, R. (2002) *The New Economy of Water: The Risks and Benefits of Globalization and Privatization of Fresh Water*, California: Pacific Institute.

GLEICK. P.H. (2000) *The World's Water 2000–2001: The Biennial Report on Fresh Water Resources*, Washington D.C.: Island Press.

GLENNON, R.J. (2009) *Unquenchable: America's Water Crisis and What to Do About*, San Francisco: ICS Press.

GLOBAL WATER PARTNERSHIP (GWP) (2000) 'Integrated Water Resources Management', Stockholm.

GLOBAL WATER PARTNERSHIP (GWP) (2000a) Towards Water Security: A frame work or action. Global Water Partnership. Stockholm.

GLOBAL WATER PARTNERSHIP (GWP) (2000b) 'A Framework for Action: Responding to the forum', Global Water Partnership, Stockholm.

GLOBAL WATER PARTNERSHIP (GWP) (GWP-TAC) (2000) 'Integrated Water Resources Management', Global Water Partnership-Technical Advisory Committee, Stockholm in R. Hirji, P. Johnson, P. Mauro and T. Matiza, GWP Technical Committee Background Paper 4. Stockholm.

GLOBAL WATER PARTNERSHIP (GWP) (SATAC) (2000) Water for the 21st Century: Visio into action – Southern Africa, Global Water Partnership, Stockholm and Harare.

GOI (2002) National Water Policy, Ministry of Water Resources, New Delhi.

GOLDENSOHM, M. (1994) 'Participation and Empowerment: An Assessment of Water User Associations in Asia and Egypt', United States Agency for International Development, Irrigation Support Project for Asia and Near East, Washington, D.C.

GOODLEY, D., LAWTHOM R., CLOUGH, P. and MOORE, M. (2004) *Researching Life Stories: Method, Theory and Analysis in a Biographical Age,* London: Routledge Falmer.

GORDON, I., LEWIS, J. and YOUNG, K. (1997) 'Perspectives on Policy Analysis', in M. Hill, ed., *The Policy Process: A Reader*, 2nd edition, London: Pearson–Prentice Hall.

GORGENS, A.H.M. and VAN WILGEN, B.W. (2004) 'Invasive Alien Plants and Water Resources in South Africa: Current Understanding, Predictive Ability and Research Challenges', *South African Journal of Science*, 100 (1/2), pp.27–33.

GRAFTON, R.Q. (2007) 'An Economic Evaluation of the National Plan for Water Security', Dry Water, Policy Briefs No. 3, The Crawford School of Economics: How to Increase the Cost-effectiveness of Water Reform and Government, The Australian National University.

GRAFTON, R.Q. (2010) *'How to increase the cost effectiveness of water reform and environmental flows in the Murray-Darling Basin', Agenda, vol. 17, no. 2, pp. 17–40.*

GRAFTON, R.Q. and HUSSEY, K. (2007) *'Buying Back the Living Murray: at what price?' Australasian Journal of Environmental Management, vol. 14, pp. 74–81.*

GRAFTON, R.Q. and JIANG, Q. (2010) *'Economics of Drought, Water Diversions, Water recovery and Climate Change in the Murray-Darling Basin', Centre for Water Economics, Environment and Policy (CWEEP) Research Paper 10-01.*

GRAY, D.E. (2005) *Doing Research in the Real World, London, Sage.*

GROVER, B. (1992) 'Institutional Arrangements for Water Resources Management in Developing Countries', Canadian International Development Agency.

GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) (2004) 'Sharing the experience on regulation in the Water Sector: SOWAS-Sub-Saharan Africa', Lusaka: GTZ.

GUERRA, P., GONZALEZ, S. and VIVEROS, K. (2010) 'Water Supply for Mining Projects in Arid Regions', in Procemin 2009, Proceedings of the 6th International Mineral Processing Seminar, Santiago de Chile, 2–4 December 2009.

GULATI, A.R., MEINZEN-.DICK.S. and RAJU.K, V. (2005) *Institutional Reforms in Indian Irrigation*, New Delhi: Sage Publications.

HACKING, I. (1999) *The social construction of what?* Cambridge, MA: Harvard University Press.

HAGUE (2000) 'Ministerial Declaration of the Hague on Water Security in the 21st Century', The Hague: Netherlands.

HALL, D. and LOBINA, E. (2006) *Pipe dream: The failure of the private sector to invest in water services in developing countries*, PSIRU/PSI/WDM.

HAMMERSLEY, M. (1995) *the Politics of Social Research,* London, Thousand Oaks Sage.

HAMMERSLEY, M. and ATKINSON, P. (1987) *Ethnography Principles in Practice*, London: Routledge.

HAMSTEAD, M. (2009) 'Improving Environmental Sustainability in Water Planning', National Water Commission, Canberra.

HAMSTEAD, M., BLADWIN, C. and O'KEEFE, V. (2008) *Water Allocation Planning in Australia — Current Practices and Lessons Learned*, Canberra: National Water Commission.

HANDY, A. and LACIRIGNOLA, C. (1999) 'Mediterranean Water Resources: Major Challenges toward the 21st Century', CIHEAM/IAM–B.

HANDY, C. (1987) *Cited in EDEXCEL HNC & HND Business Organisations and Behaviour Course book,* 2004, London: BPP Professional Education.

HANNAM, I. (2003) 'A method to identify and Evaluate the Legal and Institutional Framework for the Management of Water and Land in Asia: the Outcome of a Study in Southeast Asia and the People's Republic of China'. International Water Management Institute. Sri Lanka.

HATIBU, N. and MAHOO, H. (2000) 'Rainwater harvesting for natural resource management: A planning guide for Tanzania', RELMA Technical Handbook Series no. 22. Swedish International Development Cooperation Agency, Land Management Unit, Regional Land Management Unit, Sida, Nairobi, Kenya.

HAYES, J.R., YOUNG, R.E., MATCHETT, M.L., McCAFFREY, M., COCHRAN, C. and HAJDUK, T. (1992) *Reading empirical research studies: The rhetoric of research*, Hillsdale, NJ: Erlbaum.

HEARNE, R.R. (2003) 'Progress in Institutional Reforms in the Water Sector in Mexico. Paper presented at the Learning Workshop on Water Institutions and Sector Performance', IAAE triennial meeting, Durban, South Africa.

HERTBERT, F.W. and BRUCE, J.A.K. (1996) *An Introduction to Survey Research, Polling and Data Analysis*, 3rd edition, London: Sage Publications.

HEYNS, P. (2003) 'Progress in Institutional reform in the water sector in Namibia', Paper presented at the Learning Workshop on Water Institutions and Sector Performance, IAAE triennial meeting, Durban, South Africa.

HOLMES, P.R. (2000) 'Effective Organisations for Water Management', *Water Resources Development*, vol. 16, no.1 pp. 57–71.

HOWARD, R. and BARTRAM, J. (2000) 'Domestic water quantity, services and health', Geneva: WHO.

HOWE, C.W. and GOEMANS, C. (2003) 'Water transfers and their impacts: lessons from three Colorado water markets', *Journal of the American Water Resources Association*, vol. 39, no. 5, pp. 1055–1065.

HOWE, C.W., SCHURMEIER, D.R. and SHAW, W.D. (1986) Innovative approaches to water allocation: The potential for water markets, *Water Resources Research*, vol. 22, pp. 439–45.

HUNT, C. (1999) 'Transposing of water policies from developed to developing countries: The case of user pays', *Water International*, vol. 24, no. 4, pp. 293–306, (December 1999) ICWE.

HUPPERT, W. (2005) 'Water Management in the Moral Hazard Trap: The Example of Irrigation', paper presented at Stockholm Water Symposium, August 21, Stockholm.

HUPPERT, W. and URBAN, K. (1998) 'Analysing Service Provision—Instruments for Development Cooperation Illustrated by Examples from Irrigation', Frankfurt, Germany: Deutsche Gezellschaft für Technische Zusammenarbeit.

HUPPERT, W., SVENDSEN, M. and VERMILLION, D.L. (2001) 'Governing Maintenance Provision in Irrigation: A Guide to Institutionally Viable Maintenance Strategies', Wiesbaden, Germany: UniversumVerlagsanstalt.

IHE/UNDP (1991) 'A Strategy for Water Sector Capacity Building', IHE Report Series, no. 24, UNDP Symposium, Delft, 3–5 June.

INGRAM, H. and OGGINS, C.R. (1992) 'The Public Trust Doctrine and Community Values in Water', *Natural Resources Journal*, vol. 32, no. 3, pp. 515–37.

INTERNATIONAL WATER RESOURCES ASSOCIATION (IWRA) (1999) 'Conference reports', *Water International*, vol. 24, no. 3, pp. 277–78. (September 1999).

IZAGUIRRE, K.A. and HUNT, K. (2004) 'Private Water Projects', The World Bank, USA.

JACKSON, S. and MORRISON, J (2007) 'Indigenous perspectives in water management: reforms and implementation' in Hussey, K. and Dovers, S. (eds) *Managing water for Australia: the social and institutional challenges*, Melbourne: CSIRO Publishing.

JACOBS, J.W. (1999) 'Comparing river basin development experiences in the Mississippi and the Mekong', *Water International*, vol. 24, no. 3, pp. 196–203.

JICA (1994) 'The Study on the National Water Resources Master Plan in the Republic of Zambia', Progress report No. 2. Prepared by Yachingo Engineering Co. Ltd.

JEPPERSON, R.L (1991) 'Institutions, institutional effects, and institutionalism', in *Institutionalism in organizational analysis*, Walter W. Powell and Paul J. DiMaggio, (eds), Chicago: University of Chicago Press.

JIANG, Q. (2010) 'An overview of the integrated irrigated agriculture water model', Centre for Water Economics, Environment and Policy Working Paper, Crawford School, The Australian National University: Canberra.

JONES, G., HILLMAN, T., KINGSFORD, R., MCMAHON, T., WALKER, K., ARRINGTON, A., WHITTINGTON, J. and CARTWRIGHT, S. (2002) 'Independent Report of the Expert Reference Panel on Environmental Flows and Water Quality Requirements for the River Murray System', Prepared for the River Murray Project Board, Canberra.

JOSEPH, J. (2001) 'Beneficiary Participation in Irrigation Water Management: The Kerala Experience', Thiruvananthapurami, Centre for Development Studies, Discussion paper 36.

JOSHI, L.K. and HOOJA, R. (2000) *Participatory Irrigation Management: Paradigm for the 21st Century*, Volume two, Jaipur, Rawat Publications.

KAMPALA, M.J., MONDOKA, A. and SHISALA, F.S. (2002) *Research study for the Application of Water Demand Management to Rural areas (Zambia*). Final Report submitted to IUCN, South Africa, p. 76.

KAUFFMANN, C. and PERARD, E. (2007) 'Stocktaking of the water and sanitation sector and private sector involvement in selected African countries', Background note prepared for the Regional Roundtable on Strengthening Investment Assessment and Reform in NEPAD Countries, 27–28 November, 2007, Lusaka, Zambia.

KERR, J.M. (2002) Watershed Development Projects in India: An Evaluation. Research Report 127, Washington, D.C: International Food Policy Research Institute.

KOMIVES, K., AKANBANG, B., WAKEMAN, W., THORSTEN, R., TUFFUOR, B., BAKALIAN, A., LARBI, E. and WHITTINGTON, D. (2007) 'Community Management of Rural Water Systems in Ghana: Post-construction Support and Water and Sanitation Committees in Brong Ahafo and Volta Regions', in L.W. Mays (ed.) *Water Resources and Sustainability*, London: McGraw-Hill (forthcoming).

KOMIVES, K., FOSTER, V., HALPEN, J. and WODON, Q. (2005) *Water, electricity and the poor: Who benefits from utility subsidies?* Washington DC: World Bank.

KOTHARI, C.R. (1985) *Research Methodology: Methods and Techniques,* New Delhi: Wiley Eastern Limited.

KOUNDOURI, P., BIROL, E. and EZAL, C. (2011) 'Water Resources Allocation: Policy and Socio-Economic Issues' in Cyprus, Koundouri, P. (ed), Chapter 11, pp. 157–62, New York; London: Spring.

KROLL, A., (2002) 'Agricultural Water Use and Sectoral Policies in Mediterranean Countries', Final Scientific Report POLAGWAT Research Project, European Commission, JRC, IPTS.

KUJINGA, K. (2002) 'Decentralising water management practise: an analysis of stakeholder participation in the management of water in the Odzi sub catchment area'. Save Catchment. University of Zimbabwe

KVALE, S. (1996) *Interviews. An introduction to qualitative research interviewing*, CA: Sage.

LATHAN, C.J.K. (2002) Manyame Catchment Council: A review of the Reform of the Water Sector in Zimbabwe, Physics and Chemistry of the Earth, vol. 27, pp. 907–17.

LIAMAS, R., L., MARTINEZ, C. and MUKHERJI, A. (2009) *Water ethics*, Marcelino.

LIBECAP, G.D. (2007) *Owens Valley Revisited: A Reassessment of the West's First Great Water Transfer*, Stanford University Press, Palo Alto.

LIBECAP, G.D. (2010a) Institutional path dependence in climate adaptation: Coman's some unsettled problems of irrigation, *American Economics Review* (forthcoming).

LIPTON, M. and LITCHFIELD, J. (2002) 'The Impact of Irrigation and Poverty', A report for the FAO by the Research Unit, University of Sussex.

LORD, W.B. and ISRAEL, M. (1996) *A proposed strategy to encourage and facilitate improved water resources management in Latin America and the Caribbean*, IDB Washington.

LOUKA, E. (2008) *Water Law and Policy: Governance Without Frontiers*, Oxford University Press: Oxford.

LUNGU, C. and HARVEY, P.A. (2008) 'Access to Sanitation and Safe Water: Global Partnerships and Local Actions: Decentralised Intersectoral Rural Water Supply and Sanitation Provision: Lessons Learned from Zambia', 33rd WEDC International Conference, Review Paper, Accra, Ghana.

MAPANGA, F.P. (2003) 'Incorporating customary laws in implementation of IWRM: some insights from Rufiji River Basin, Tanzania', *Physics and Chemistry of the Earth* vol. 28 (2003), pp. 995–1000.

MALCOLM, W. and TIM, M. (1996) *Introduction to the Philosophy of Social Research*, UCL Press Limited: London

MAPEDZA, E. and GEHEB, K. (2010) 'Power dynamics and water reform in the Zimbabwean context: implications for the poor', *Water Policy*, vol. 12, no. 4, pp. 517–27.

MARIN, P., FALL, M. and QUIBIGA, H. (2010) Corporatising a Water Utility: A Successful Case Using Performance-based Service Contract for ONEA in Burkina Faso. Gridlines, vol. 53, pp. 1–4.

MARSH, I. and YENCKEN, D. (2004) *Into the future: the neglect of the long term in Australian politics*, Melbourne: Black Inc.

MAY, T. (2011) *Social Research, Issues, methods and Process*, Buckingham: Open University Press.

MAZYIMAVI, D. (2002) 'Watershed Degradation and Management', in R. Hiriji, P. Johnson, P. Mauro and T. Matiza-Chiuta (eds.) *Defining and Mainstreaming Environmental Sustainability in Water Resource Management in Southern Africa*, SADC, IUCN, SARDC, World Bank: Maseru/Harare/Washington D.C.

MCNIFF, J. and WHITEHEAD, J. (2005) *All You Need to Know About Action Research,* London, Sage.

MCNIFF, J. and WHITEHEAD, J. (2009) *Doing and Writing Action Research,* London, Sage.

MCRACKEN, G. (1988) *The Long Interview*, Thousand Oaks, CA: Sage Publications.

MEINZEN- DICK .R. and PRADHAM, R. (2002) 'Legal Pluralism and Dynamic Property Rights', CAPRi Working Paper 22. Consultative Group on International Agricultural Research, Washington, D.C.

MEINZEN-DICK .R. and ZWARTEVEEN, L. (1998) *'Gendered Participation in Water Management: Issues and Illustrations from Water Users' Associations in South Asia', in D. Merrey and S. Baviskar (eds.), Gender Analysis and Reform of Irrigation Management: Concepts, Cases and Gaps in Knowledge,* Colombo: International Water Management Institute.

MEINZEN- DICK .R.S., PRADHAM, R., PALANISAMI, K., DIXIT, A. and ATHUKORALA, K. (2004) *Livelihood Consequences of Transferring Water out*

of Agriculture: Synthesis of Findings from South Asia, Ford Foundation, New Delhi.

MERREY, D., DE LANGE, M., GICHUKI, F., VAN KOPPEN, B., INOCENCIO, A., KAMARA, A., CROSBY, C., LEVITE, H. and SALLY, H. (2002) 'Agricultural water use and improving rural livelihoods in Sub-Saharan Africa: current status, future directions, and the role of the International Programme for Technology and Research and Irrigation and Drainage (IPTRID)', Keynote Paper prepared for the IPTRID Event at the International Congress for Irrigation and Drainage (ICID), Montreal, Canada, 23 July 2002, International Water Management Institute, Pretoria, South Africa.

MERREY, D.J. (2000) Creating Institutional Arrangements for Managing Water-Scarce River Basins: Emerging Research Results. Paper Presented at the Session on' Enough Water for All' at the Global Dialogue on the Role of the Village in 21st Century; Crops Jobs. Livelihoods. August 15–17 in Hanover, Germany.

MERRILL, B. and West, L. (2009) *Using Biographical Methods in Social Research*, London: Sage.

MILES, M.B. and HUBERMAN, A.M. (1994) Qualitative Data Analysis, 2nd ed., Thousand World Bank (1993) *Water Resources Management – A World Bank Policy Paper* 7.

MINISTRY OF AGRICULTURE AND COOPERATIVES (MACO, 2002) *Draft Agricultural Policy*, Republic of Zambia.

MEWD (1994) *National Water Policy*, Ministry of Energy and Water Development, Lusaka.

MISHLER, E.G. (1986) *Research interviewing: Context and narrative*, Cambridge, MA: Harvard University Press.

MOLDEN, D. and SAKTHIVADIVEL, R. (1999) 'Water accounting to assess use and productivity of water', *International Journal of Water Resources Development* vol. 15, no. 1&2, pp. 55–73.

MOLLE, F. (2005) 'Irrigation and Water Policies in the Mekong Region: Current Discourses and Practices', IWMI Research Report 95. Colombo: International Water Management Institute.

MOLLE, F. and BERKOFF, J. (2005) 'Cities versus Agriculture: Revisiting Intersectoral Water Transfers, Potential Gains, and Conflicts', Comprehensive Assessment of Water Management in Agriculture Research Report 10, International Water Management Institute, Colombo.

MOLLINGA, P.P. and BOLDING, A. (2004) 'the Politics of Irrigation Reform: Research for Strategic Action', in P. Mollinga and A. Bolding (eds.), *the Politics of Irrigation Reform: Contested Policy Formulation and Implementation in Asia and Africa*, Newbery Park, CA: Sage.

MOLLINGA, P.P., DORAISWAMY, R. and ENGBERSEN, K. (2004) 'Capture and Transformation: Participatory Irrigation Management in Andhra Pradesh, India', in P. Mollinga and A. Bolding (eds.), *the Politics of Irrigation Reform: Contested Policy Formulation and Implementation in Asia, Africa and Latin America*, Hans, UK: Ashgate.

MOORE, L., CRAIG, P. and ALLEN, P. (1994) 'Technical and institutional innovations changing water resources management and allocation in the Western United States', in H. Garduno and F. Arreguin-Cortes (ed.), *Efficient water use*, pp. 311–21, Mentevieo, Uruguay: UNESCO.

MORARDED, S., MERREY, J., SESHOKA, J. and SALLY, H. (2005) 'Improving Irrigation Project Planning and Implementation Processes in Sub-Saharan Africa: Diagnosis and Recommendations', IWMI Working Paper 99, International Water Management Institute, Colombo.

MORGAN, D.L. (1988) *Focus groups as qualitative research*. Newbury Park, CA: Sage.

MORIARTY, P., BUTTERWORTH, J. and VAN KOPPEN, B. (2004) *Beyond Domestic: Case Studies on Poverty and Productive Uses of Water at the Household Level*, Delft, Netherlands: IRC International Water and Sanitation Centre.

MORRIS, J. (1997) 'Water Policy: Economic Theory and Political Reality', in Kay M., Franks T., Smith L. (eds.) *Water Economics, Management and Demand*

MOSLEY, M.P. (1996) 'A participatory process approach to development of a comprehensive water resources management plan for Sri Lanka', *Water International*, vol. 21, no. 4, pp. 191–97.

MOSS, T. (2003) 'Solving Problems of 'Fit' at the Expense of Problems of 'Interplay'? The Spatial Reorganisation of Water Management following the EU Water Framework Directive' Journal of Environment, pp. 85–121.

MPANDE, R. (1995) 'Nyamandlovu Aquifer Pipeline Project: A Socio-Economic Impact Study. Study commissioned by Danish International Development Agency and The Department of Water Development', Harare, Zimbabwe: Department of Water Development.

MUJWAHUZI, M. (2002) 'Community-Based Water Resources Management', in: R. Hiriji, P. Johnson, P. Mauro and T. Matiza-Chiuta (eds.) *Defining and Mainstreaming Environmental Sustainability in Water Resource Management in Southern Africa*, SADC, IUCN, SARDC, World Bank: Maseru/Harare/Washington D.C.

MUYOYETA, H. (2004) *Integrated Assessment of Gender, Land and Water and Their Impact on Food Security: The Case of Zambia*. Women land and Water Rights in Southern Africa, USAID

NAKAYAMA, M. (2002) *International Waters in Southern Africa*, United Nations University Press, Tokyo.

NAMARA, R., UPADHYAY, B. and NAGAR, R.K. (2005) 'Adoption and Impacts of Micro irrigation Technologies from Selected Localities of Maharashtra and Gujarat States of India', IWMI Research Report 93, Colombo: International Water Management Institute.

NARAYAN, D. (1995) The Contribution of People's Participation: Evidence from 121 Rural Water Supply Projects, ESD Occasional Paper Series 1, World Bank.

NASH, J. (2005) 'Sustainable Development Strategies in Agriculture and Rural Development', a paper presented during the WTO Symposium on Trade and Sustainable Development: Geneva.

NASR, M. (1999) 'Assessing Desertification and Water Harvesting in the Middle East and North Africa', Policy Implications, ZEF Discussion Papers on Development Policy, Universitat Bonn, Bonn.

NEUMAN, W.L. (1997) *Social Research Methods. Quantitative and Qualitative Approaches*, Allyn and Bacon: Boston.

NICKSON, A. and FRANCEYS, R. (2003) *Tapping the Market: The Challenge of Institutional Reform in the Urban Water Sector*, Palgrave Macmillan, Basingstoke, Hampshire.

NKHUWA, C.W. and DANIEL, W. (2002) 'Overcoming Constraints of Water Demand Management in Southern Africa', final report submitted to IUCN, South Africa, pp. 43–78.

NOLL, R.G. (2002) 'The Economics of Urban Water Systems', chapter 2, in *Thirsting for Efficiency, The Economics and Politics of Urban Water System Reform*, The World Bank and Pergamon, pp. 43–64.

NORTH, D. (1987) 'Institutions, transactions cost and economic growth', *Economic Inquiry* vol. 25, pp. 419–28.

NORTH, D. (1990) *Institutions, Institutional Change, and Economic Performance*, Cambridge, UK: Cambridge University Press.

NWASCO (2000) 'Guidelines on Required Minimum Service Level. Ministry of Local Government and Housing Peri-Urban Water Supply and Sanitation Strategy', (Undated).

NWASCO (2003) 'Urban and Peri–Urban Water Supply and Sanitation Sector Report 2002/03', Lusaka: NWASCO.

NWASCO (2007a) 'Urban and Peri-Urban Water Supply and Sanitation Sector Report 2006/07', Lusaka: NWASCO.

NWASCO (2007b) 'Tariff Impact Assessment Final Report'.

NWASCO (2008) 'Urban and Peri-Urban Water Supply and Sanitation Sector Report 2007/08', Lusaka: NWASCO.

NWASCO (2009) 'Urban and Peri-Urban Water Supply and Sanitation Sector Report 2008/09', Lusaka: NWASCO.

NWASCO (2010) 'Urban and Peri-Urban Water Supply and Sanitation Sector Report 2009/10', Lusaka: NWASCO.

NYAMBE, I.A., MWASAMBILI, R., MATE, L., LUNGU, C.V., KAMBOLE, M. and MASEKA C. (2002) 'Water Demand Management in Zambia: Towards promotion and adoption', Final Report (REFEREED), p. 130.

OECD (2011) *Water Security Issues in South Africa and Chile*, Paris.

OHLSSON, L. and LUNDGVIST, J. (2000) 'The Turning of a Screw – Social Adaptation to Water Scarcity', in Falkenmark *et al*., *New Dimensions in Water Security*, FAO, Rome.

OLMSTEAD, S.M. (2004) 'Thirsty Colonias: Rate Regulation and the Provision of Water Service', *Land Economics*, vol80, pp. 136.

OSTROM, E. (1992) *Crafting institutions for self-governing irrigation systems*, San Francisco, California: Institute of Contemporary Studies.

OSTROM, E., SCHROEDER, L. and WYNNE, S.G. (1993) *Institutional Incentives and Sustainable Development: Infrastructure Policies in Perspective*, Boulder, Colorado: Westview Press.

Ostrom, E(1999) *Design Principles and Threats to sustainable Organisations*. Centre for the Study of Institutions, Populations and Environmental Changes, Indian University

PAHL-WOSTL, C. (2002) 'Towards Sustainability in the Water Sector: The Importance of Human Actors and Processes of Social Learning', *Aquatic Sciences*, vol. 64, no. 4, pp. 394–411.

PAKHUS, E. (2006) 'Water Reform and Access to Water for the Rural Poor', Danida – DWF Research – DIIS Conference, Copenhagen, 19 September 2006.

PATTON, M.Q. (1990) *Qualitative Evaluation and Research Methods*, 2nd ed, London/New York Zedbooks.

PATTON, M.Q. (2003) *Qualitative Research and Evaluation Methods*, 3rd ed, Thousand Oaks, CA: Sage Publication.

PENNING DE VRIES, F.W.T., SALLY, H. and INOCENCIO (2005) 'Opportunities for Private Sector Participation in Agricultural Water Development and Management', IWMI Working Paper 100, International Water Management Institute, Colombo.

PERIA, H. and SALONES, M. (2003) 'Effective Water Governance in the Americas: A Key Issue', paper presented at the Third World Water Forum, March 16–23, Kyoto, Japan.

PERRET, S.R. (2002) 'Water policies and smallholder irrigation schemes in South Africa: a history and new institutional challenges', *Water Policy*, V 4 pp. 283–300

PERRY, C.J. (1995) 'Determinants of Function and Dysfunction in Irrigation Performance and Implications for Performance Improvement', *International Journal of Water Resources Development*, vol. 11, no. 1: pp. 25–38.

PERRY, C.J. (1999) The IIMI water resources paradigm–definitions and implications. *Agriculture Water Management*, vol.40, pp. 45–50.

PETER, S. (2006) 'Zambia Water Sector: Challenges for Integrated Water Resources Management in Zambia', Danida Water Sector Seminar Paper: Ghana.

PINAY, G. (1988) 'Hydrological Assessment of the Zambezi River System: A Review Working Paper on Interim Reports on Work of the International Institute of Applied System Analysis', Laxenburg, Austria: International Institute of Applied Systems Analysis.

PLUMMER, K. (2001) *Documents of Life 2,* London, Sage.

POSTEL, S. (1992). *Last oasis: facing water scarcity*, W.W. Norton & Company, New York.

POSTEL,S. and RICHTER, B. (2003) *Rivers for life: Managing water for people and nature*, Washington, D.C.: Island Press.

POWELL, J. (1998) *'Snakes and cannons: water management and the geographical imagination in Australia' in S. Dovers (ed.) Environmental history and policy: still settling, Melbourne: Oxford University Press.*

POWELL, J. (2000), *'Snakes and cannons: water management and the geographical imagination in Australia' in S. Dovers (ed.), Environmental history and policy: still settling Australia, Melbourne:* Oxford University Press*.*

POWELL, W.W. and PAUL J.D. (1991) *Institutionalism in organizational analysis, Chicago:* University of Chicago Press*.*

PRANEE, L. and JEAN, R. (2008) *Knowing Differently: Arts-Based Collaborative Research Methods*, Nova Science Publishers.

PRISCOLI, J.D., DOOGE, J., and LLAMAS, R. (2004) *Water and ethics: overview*, Paris: UNESCO.

PROAG, V. (2006) 'Water Resource Management in Mauritius', *European Water*, vol. 15/16, pp. 45–57.

PROTOKOPY, L. (2004) 'Women's Participation in Rural Water Supply Projects in India: Is it moving Beyond Tokenism and Does it Matter?' *Water Policy*, vol. 6, pp. 103–16.

PROKOPY, L., Thorsten, R., Bakalian, A. and Wakeman, W. (2007) 'Evaluating the Role of Post-Construction Support in Sustaining Drinking Water Projects: Evidence from Peru', *Journal of Planning Education and Research* (forthcoming).

PUNCH, M. (1994) 'Politics and ethics in qualitative research', in N.K. Denzin and Y.S. Lincoln (eds), Handbook of Qualitative Research.

QUENTIN, G. and KAREN, H. (2011) *Water Resources Planning and Management*, Cambridge/New York: Cambridge University Press.

QUIGGIN, J. (2008) 'Uncertainty, risk and water management in Australia, in Water policy in Australia the Impact of Change and Uncertainty', L. Crase (ed.), *Resources for the Future*, Washington D.C.

RAMPA, F. and PUIG, G.P. (2011) 'Analysing Governance in the Water Sector in Kenya', Discussion paper no.124.

RASKIN, P. (1997) *Water Futures: Assessment of Range Patterns and Problems*, Stockholm: Stockholm Environmental Institute (SEI).

RAUCHER, R., HARROD, M., HAGENSTAD, M. and INC, S.C. (2004) 'Consolidation for Small Water Systems: What are the Pros and Cons?' National Rural Water Association – White Paper.

REES, J., PENNY, J. and HA, A. (2008) *Water financing and governance*, Stockholm: Global Water Partnership.

REES, J.A. (2001) *Regulation and Private Participation in the Water and Sanitation Sector*, Global Water Partnership.

REINHARZ, S. (1992) *Feminist methods in Social Research*, New York: Oxford University Press.

RENWICK, M. (2001) 'Valuing Water in Irrigated Agriculture and Reservoir Fisheries: A Multiple-Use Irrigation System in Sri Lanka', IWMI Research Report 51. Colombo: International Water Management Institute.

REPETTO, R. (1986). *Skimming the Water: Rent-Seeking and the Performance of Public Irrigation Systems*, Washington, D.C.: World Resources Institute.

REPUBLIC OF ZAMBIA (1949) 'The Water Act', Lusaka: Government Printers.

REPUBLIC OF ZAMBIA (2006) *Draft Land Administration and Management Policy*, The Ministry of Lands, Lusaka. Zambia.

REPUBLIC OF ZAMBIA (GRZ) (1994) 'National Water Policy', Lusaka: Ministry of Energy and Water Development, GRZ.

REPUBLIC OF ZAMBIA (GRZ) (1998) 'National Water Act No. 108 of 1998', Ministry of Finance

REPUBLIC OF ZAMBIA (GRZ) (2003) *'Report on the National Water Resources Action Programme (WRAP) Consultative Forum: The Proposed Institutional and Legal Framework for the Use, Development and Management of Water Resources',* Ministry of Energy and Water Development.

REPUBLIC OF ZAMBIA (GRZ) (2004) 'Second PRSP implementation progress report, July 2003–June 2004', Lusaka: Ministry of Finance and National Planning.

REPUBLIC OF ZAMBIA (GRZ) (2005) 'Zambia Water Resource Management Sector Report 2004', Lusaka: Water Resource Action Programme, Ministry of Energy and Water Development.

REPUBLIC OF ZAMBIA (GRZ) (2006) 'Fifth National Development Plan 2006–2011', Lusaka: Ministry of Finance.

RITCHIE, J. and LEWIS, J. (2003) *Qualitative Research Practice*, SAGE Publications: London.

ROBINSON, P. (2002) All for some water inequity in Zambia and Zimbabwe. Physics and Chemistry of the Earth, vol. 27, pp. 851–57.

ROESNER, L, and SALAS., J.D. (2004) 'Integrated water management and law in Colombia', Colorado State University Proyecto Ley Del Agua Colombia Final Report.

ROGER, S. and VICTOR, J. (1996) *Data Collection and Analysis*, SAGE Publications: London.

ROGERS, P. and LYNDON, P. (1994) *Water in the Arab World, Perspectives and Prognoses*, Harvard University Press, Harvard.

ROSEGRANT, M.W. and BINSWANGER, H. (1994) 'Markets in Tradable Water Rights: Potential for Efficiency Gains in Developing Country Water Resource Allocation', *World Development*, vol. 22, no. 11, pp. 1–11.

RUKUNI, M. (1995) 'Policy Options for Irrigated Food Production in Southern Africa', *Journal of Applied Science in Southern Africa*, vol. 1, no. 1.

SABETIER, P., FOCHT, W., LUBELL, M., TRACHTENBERG, Z., VEDLITZ, A. and MATLOCK, M. (2005) *Swimming Upstream: Collaborative Approaches to Watershed Management*, Boston, Mass.: MIT Press.

SABINE, M.O. (2003) *How to Conduct In–Person Interviews for Surveys*, 2nd edition, Sage Publications: London.

SAGHIR, J., SCHIFFLER, M. and WOLDU, M. (2000) *Urban Water and Sanitation in the Middle East and North Africa Region: The Way Forward*, Washington D.C.: World Bank.

SALETH, R.M. and DINAR, A. (2000) *The Political Economy of Water Pricing Reforms*, New York: Oxford University Press.

SALETH, R.M. and DINAR, A. (1999) *Water Challenge and Institutional Response: a Cross-Country Perspective*, Washington D.C.: World Bank.

SALETH, R.M. and DINAR, A. (1999a) 'Water challenge and institutional response (A Cross-Country Perspective)', Policy Research Working Paper 2045, Washington D.C.: The World Bank.

SALETH, R.M. and DINAR, A. (1999b) *Evaluating water institutions and water sector*, Washington D.C.: World Bank.

SALETH, R.M. and DINAR, A. (2004) *The Institutional Economics of Water: A Cross–Country Analysis of Institutions and Performance*, Edward Elgar Publishers.

SALETH, R.M. and DINAR, A. (2000) 'Institutional Changes in Global Water Sector: Trends, Patterns and Implications', *Water Policy*, vol. 2, no. 3, pp. 175–99.

SALETH, R.M. (2004) *Strategic Analysis of Water Institutions in India: Application of a New Research Paradigm*, Washington D.C.: World Bank.

SAMAD, M. (2005) 'Water Institutional Reforms in Sri Lanka', *Water Policy, vol.* 7, no. 1, pp. 125–40.

SAMAD, M. and BANDARAGODA, T. (1999) *Methodological guidelines for the five-country regional study on development of effective water management institutions*, Colombo, Sri Lanka: International Water Management Institute.

SAMAD, M. and MERREY, D.J. (2005) 'Water to Thirsty Fields: How Social Research Can Contribute', in M. Cernea and A. Kassam (eds.), *Researching the Culture in Agriculture: Social Research for International Development,* Wallingford, UK: CABI Publishing.

SAMAD, M. and VERMILLION, D.L. (1999) 'Assessment of the Impact of Participatory Irrigation Management in Sri Lanka: Partial Reforms, Partial Benefits', IWMI Research Report 34, Colombo: International Water Management Institute.

SAMPATH, R.K. and YOUNG, R.A. (1990) *Social, Economic and Institutional Issues in Third World Irrigation Management*, Boulder: Westview Press.

SAUL, B. and BRYMAN, A. (2004) *Understanding Research for Social Policy and Practice, Themes, Methods and Approaches*, Loughborough University.

SAVENIJE, H. H.G. (1997) *Concepts and Tools for Integrated Water Resources Management*, IHE Delft.

SAVENIJE, H.H.G. and VAN DER ZAAG. P. (1998) *the management of shared river basins: Focus on development*, Ministry of Foreign Affairs, The Hague. Revised and published as 'Conceptual framework for the management of shared river basins'; with special reference to Seckler, D. (1996) *The new era of water resource management: From "dry" to "wet" water savings,* Research Report 3. Colombo Sri Lanka: International Irrigation Management Institute.

SCHLOSSER, A.C. and STRZEPEK, K. (2013) 'Regional climate change of the greater Zambezi River Basin: A hybrid assessment WP/2013/040', WIDER Working Paper.

SCHREINER, B. and VAN KOPPEN, B. (2001) 'From Bucket to Basin: Poverty, Gender and Integrated Water Management in South Africa. International Water Management Institute and German Foundation for International Development: Colombo.

SCOTT, J.C. (1998) *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, Yale Agrarian Studies Series. New Haven, Conn., and London: Yale University Press.

SCOTT, W.R. and MEYER, J.W. (1991) 'The rise of training programs in firms and agencies: An institutional perspective', in B.M. Staw and L.L. Cummings (ed.), *Research in Organizational Behaviour,* vol. 13, pp. 297–326, Greenwich, CT: JAI Press.

SCOTT, W.R. and MEYER, J.W. (1994) *Institutional Environments and Organizations: Structural Complexity and Individualism*, Thousand Oaks, CA: Sage.

SHEDISH, W.R., COOK, T.D. and CAMPELL, D.T. (2001) *Experimental and quasi-experimental designs for generalized causal inference*, Boston: Houghton Mifflin.

SHIKLOMANOY, I.A. (2003) 'World water use and water availability', in I.A. Shiklomanov and J. C. Rodda (eds), *World Water Resources at the Beginning of the 21st Century*, Cambridge University Press, Cambridge, UNESCO.

SILVERMAN, D. (2000) *Doing Qualitative Research: A Practical Guide*, Thousand Oaks, CA: Sage Publications.

SILVERMAN, D. (2005) *Interpreting Qualitative Data: Methods for Analysing Talk Text and Interaction*, 2nd edition, Sage Publications: London.

SIMATAA, N. (2005) 'Draft Report for the Zambia Water Partnership for Africa's Water Development: Review of the Integration of Water and Sanitation in the PRSP', GWPSA: Zambia.

SIMUTANYI, N. (1996) *'The politics of structural adjustment in Zambia', Third World Quarterly, vol. 17, no. 4, pp. 825–39.*

SIVAMOHAN, M.V.K. and SCOTT, C. (1994) *India: Irrigation Management Partnerships*, Hyderabad, India: Book links Corporation.

SMALL, L. and SVENDSEN, M. (1990) 'A framework for assessing irrigation performance; Irrigation and Drainage Systems', *vol. 4/4, November 1990, Dordrecht, the Netherlands: Kluwer Academic Publishers*.

SMALL, L.E. and CARRUTHERS, I. (1991) *Farmer-Financed Irrigation: The Economics of Reform*, Cambridge, UK: Cambridge University Press.

SMITH, H. (2008) 'governing water: The semi commons of fluid property rights', Arizona Law Review, vol. 50, pp. 445–78.

SMITH, L. (2003) 'the murky waters of the second water of neoliberalism: Corporatisation as a service delivery model in Cape Town', *Geoforum*, vol. 35, no. 3, pp. 375–93.

SMOUT, I. (1996) *The Roles of NGOs in Expanding the Water Sector*, Overseas Development Administration: The Institute of Development Engineering: Loughborough University.

SOKILE, C.S., KASHAIGALI, J.J. and KADIGI, R.M.J. (2002) 'Towards an integrated water resource management in Tanzania: the role of appropriate institutional framework in Rufiji basin', paper presented at the 3rdWaternet/WARFSA symposium, Integrating Water Supply and Water Demands for Sustainable Use of Water Resources, Dar es Salaam, 30–31 October 2002.

SOMEKH, B. and LEVIN, C. (2011) *Theory & Methods in Social Research,* London: Sage.

STRAUSS, A.L. and CORBIN, J. (1998) *Basics of Qualitative and Quantitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd edition, London: SAGE Publications.

STRINGER, E.T. (2007) *Action Research,* London: Sage.

STURN, C., RIBBE, L. and SCHWABE, C. (1996) *Water Resources Management in the West Bank*, ASA.

SVENDSEN, M. and HUPPERT, W. (2000) *Incentive Creation for Irrigation System Maintenance and Water Delivery: The Case of Recent Reforms in Andhra Pradesh*, Eschborn, Germany: Deutsche Gesellschaft für Technische Zusammenarbeit.

SWALLOW, B.M., JOHNSON, N.L. and MEINZEN, D.R.S. (2001) 'Working with People for Watershed Management', *Water Policy*, vol. 3, no. 6, pp. 449–56.

SWATUK, L.A. (2005) 'Political Challenges to Implementing IWRM in Southern Africa', *Physics and Chemistry of the Earth*, vol. 30, no. 11–16, pp. 872–80.

SWATUK, L.A. (2002) 'Water reforms in Zimbabwe; some observations based on the Save catchment experiences and suggestions for ways forward', in E. Manzungu (ed.) *The Processes and Dynamics of Catchment Management in Zimbabwe*, Save Africa Trust Publications, Harare, Tanzania.

SWYNGEDOUW, E. (2005) 'Dispossessing H2O: The contested terrain of water privatization', *Capitalism Nature Socialism*, vol. 16, no. 1, pp. 81–98.

SYENDASEN, M. (2005a) 'Basin Management in a Mature Closed Basin: The Case of California's Central Valley', in M. Svendsen (ed.), *Irrigation and River Basin Management: Options for Governance and Institutions*, Wallingford, UK: CABI Publishing.

SYKES, W. (1991) 'Taking stock: issues from the literature on validity and reliability in qualitative research', *Journal of the Market Research Society*, vol. 33, no. 1, pp. 3–12.

SYMON, G., and CASSEL, C. (1998) *Qualitative Methods and Analysis in Organisational Research*, Thousand Oaks, CA: Sage Publications.

TAPELA, B.N. (2002) 'the challenge of integration in the implementation of Zimbabwe's new water policy: a case study of the catchment level institutions surrounding the Pungwe Mutare water supply project', *Physics and Chemistry of the Earth*, vol. 27, pp. 993–1004.

TASHAKVOKI, A. (1998) *Mixed Methodology: Combining Qualitative and Quantitative Approaches*, Thousand Oaks, CA: Sage Publishers.

TASHAKVOKI, A. and Charles, T. (2003) *Handbook of Mixed Methods in Social and Behavioural Research*, Thousand Oaks, CA: Sage Publications.

THOMPSON, J.B. (2001) *Private Sector Participation in the Water Sector: Can It Meet Social and Environmental Needs,* International Institute for Environment and Development.

THOMPSON, J.B. (1993) 'Institutional perspectives on water policy and markets', *California Law Review*, vol. 81, no. 3, pp. 671–764.

TORTAJADA, C and BISWAS, A. (2010) *Improving Water Policy and Governance, Routledge: London*.

TURSHAAR, S. (2005) 'The New Institutional Economics of Indices Water Policy', International Workshop on African Water Laws: Plural Legislative Framework for Rural Water Management in Africa 26–28 January 2005; Johannesburg: South Africa.

TURTON, A.R. and OHLSSON, L. (1999) *Water Scarcity and Social Stability: Towards a Deeper Understanding of the Key Concepts Needed to Manage Water Scarcity in Developing Countries*, School of Oriental and African Studies (SOAS) London.

TYNAN, N. and KINGDOM, B. (2002) 'A water scorecard: Public policy for the private sector', Private sector and infrastructure network, Note Number 242, New York: World Bank.

UIHASSAN, M., STARKLOFF, R. and NIZAMED. I(2004) 'Inadequacies in the Water Reforms in the Kyrgyz Republic', IWMI Research Report 81, Colombo: International Water Management Institute.

UNWWAP (2006) 'United Nations World Water Assessment Programme. The World Water Development Report 2: Water, A Shared Responsibility', Paris, France: UNESCO.

UNWWAP (2009) 'the World Water Development Report 3: Water in a Changing World', United Nations World Water Assessment Programme, Paris, France: UNESCO.

UNDP (2007) *The human development report 2006: Beyond scarcity, power and poverty in global water crisis*, [online], available at: <www.undp.org/hdr2007> (accessed 17 January 2010).

UNEP (2004) *Rain Water and the Millennium Development Goals* [online], available at: <http://www.unep.org/pdf/RWH/intro.pdf> [accessed 20 September 2010].

UNEP (2012) *The UN Water Status Report on the Application of Integrated Approaches to Water Resources Management*, UNEP.

UNICEF (2012) Understanding the Global WASH Sector Landscape, [online], available: <www.national network for interpreting.ac.uk.t,p/wash> [accessed 02 February 2014].

UNICEF and WHO (2008) 'Progress on Drinking Water and Sanitation: Special Focus on Sanitation', Health Organization Joint Monitoring Programme for Water Supply and Sanitation, New York: UNICEF and Geneva: WHO.

UNITED NATIONS (UN 2012) *Progress on Drinking Water and Sanitation. World Health Organisation and Unicef*.

UNW-DPAC (2008) *The MDG Targets on Water and Sanitation Reader*, United Nations, New York.

UNWWAP (2006) 'Water Security: A Preliminary Assessment of Policy Progress since Rio', United Nations World Water Assessment Programme, Bonn.

UNWWAP (2009) *The United Nations World Water Development Report 2: Water a shared responsibility*, Paris: UNESCO.

VAN DER ZAAG, P., SEYAM, H.G. and SAVENIJE, H.H. (2002) 'Towards measurable criteria for the equitable sharing of international waters', *Water Policy*, vol. 4, pp. 19–32.

VAN HOFWEGEN, P.J.M. and JASPERS, F.G.W. (1999) *Analytical Framework for Integrated Water Resources Management – Guidelines for Assessment of Institutional Frameworks*, IHE Monograph 2, Rotterdam/Brookfield: Balkema Publishers.

VERMILLION D. L., SAMAD, M., PUSPOSUTARJIO, S., ARIF, S.S. and ROCHDYNTO.R (2000), 'An Assessment of Small-Scale Irrigation Management Turnover Program in Indonesia', IWMI Research Report 38, Colombo: International Water Management Institute.

VERMILLION, D.L. and GARCES -RESTREPO, C. (1998) 'Impacts of Colombia's Current Irrigation Management Transfer Program', IWMI Research Report 25, Colombo: International Water Management Institute.

VERMILLION, D.L. and MERREY, D.J. (1998) 'What the Twenty-First Century Will Demand of Water Management Institutions' *Journal of Applied Irrigation Science*, vol. 33, no. 2, pp. 145–64.

WADE, R. (1982) 'The System of Administrative and Political Corruption: Canal Irrigation in South India', *Journal of Development Studies*, vol. 18, no. 3, pp. 287–328.

WATER AID ZAMBIA (2012) *Water Security Framework*, Water Aid: London.

WATER AID ZAMBIA (2009) *Country Programme Evaluation*, [online], available at: www.wateraid.org (accessed 17 February 2013).

WATSON, A. (2009) 'Collecting Water for the Households Use from a River near Lacs Aloatra in Madagascar', The Report on Addressing Water Challenges in the Developing Countries based on the Framework of Action, Washington D.C.: The USAID.

WEST, L. (1996) *Beyond Fragments*, London: Taylor and Francis.

WESTER, P.D., MERREY, J. and DE LANGE, M. (2003) 'Boundaries of Consent: Stakeholder Representation in River Basin Management in Mexico and South Africa', *World Development*, vol. 31, no. 5, pp. 797–812.

WESTER, P.D., SHAH, T. and MERREY, D. (2005) 'Providing Irrigation Services in Water Scarce Basins: Representation and Support', in M. Svendsen (ed.), *Irrigation and River Basin Management: Options for Governance and Management*, Wallingford, UK: CABI Publishing.

WHITE, H. (1997) 'Zambia in the 1990s as a case of adjustment in Africa', *Africa Development Review*, vol. 9, no. 2, pp. 56–87.

WORLD BANK (1992) 'Country Experiences with Water Resources Management', *Economic, Institutional, Technological and Environmental Issues*, Washington D.C.

WORLD BANK (1994) *A Strategy for Managing Water in the Middle East and North Africa*, Washington D.C.

WORLD BANK (1995) *From Scarcity to Security. Averting a crisis in the Middle East and North Africa*, Washington D.C.

WORLD BANK (1997) *the Hashemite Kingdom of Jordan Water Sector Review*, Washington D.C.

WORLD BANK (1998) *Demand Responsive Approaches to Community Water Supply: Moving from Policy to Practice, East and Southern Africa*. World Bank: Washington D.C.

WORLD BANK (2001) *The Hashemite Kingdom of Jordan Water Sector Review*, Washington D.C. World Resources Institute, World Resources 2000–2001.

WORLD BANK (2010) 'Databank', available at: <www.worldbank.org/databank:Online> [Accessed 20 December 2011].

WORLD WATER COMMISSION (WWC) (2000) *water secure world*, UK: Thanet Press.

WORLD WATER COUNCIL (WWC) (2011) *Water for City Responding to the Challenge*, Library Publications and Reports, WWD.

WORLD WATER VISION (WWV) (2000) 'A Water Secure World: Vision for water, life and the environment', Commission Report of World Water Council, Paris.

YARROW, G. (1999) 'A Theory of Privatisation, or why Bureaucrats are still in Business', *World Development*, vol. 27, no. 1, pp. 157–68.

YIN, R.K (2003) *Case Study Research: Design and Methods*, Thousand Oaks, CA: Sage Publications.

YIN, R.K. (1981) 'The case study as a serious research strategy', *Knowledge: Creation, Diffusion, Utilization,* vol. 3, no. 1, pp. 97–114.

YUIL, D., Allen, K. and HULL, D. (1980) *Regional Policy in the European Community*, New York: St. Martin's Press.

Appendix 1: RESEARCH CONSENT FORM FOR THE PARTICIPANTS

Researcher: Patrice Kandolo Kabeya

Contact details:

Bradford Centre for International Development (BCID), School of Social Science and International Studies, University of Bradford, West Yorkshire, BD7 1DP, UK

Affiliation: PhD Research Student, Department of Development and Economic Studies, University of Bradford, United Kingdom.

E-mail: **kpkabeya@bradford.ac.uk** or **patricekandolo2002@yahoo.co.uk**

My name is Patrice Kandolo Kabeya, PhD Research Student at the University of Bradford, School of Social Sciences and International Studies , Bradford Centre for International Development(BCID) . As part of my degree programme, I will be conducting research in the area of water policy and institutional effects in the Zambezi basin in Zambia in order to gain insights into policy implementation. In this respect, this research study is intended to contribute to the advancement of knowledge and a better understanding of water policy issues in the context of institutional changes in the rural area.

Your participation in this study is of great importance because it will enable society to adapt to the changes in the area of policy implementation. In order to proceed, I would like to request you and confirm that you are intending to participate in the study and that the researcher has fully briefed you on why you are signing the consent form.

Mr, Ms, Mrs, ---------- has read all the information contained in the consent form and he/she is fully aware of the nature of the research to be carried out by the researcher on the ---------- 2012

I can confirm that after being briefed by the researcher, I understand the process and procedures and I had the opportunity to understand in detail the scope of the research and its intended objectives and outcomes. On my part as a participant, I had the pleasure of asking all the necessary questions which I

had on my mind and I confirm that the researcher answered my queries satisfactorily.

The researcher informed me that all the matters discussed between the respondent and researcher will be confidential unless with permission to release such information.

I am aware that my participation in this research is on voluntary basis and that I am given the right to withdraw from the interview process and in this case the copy of my consent form will be given back to me.

I am aware that this research is part of the PhD requirements and I personally agree to the use of anonymous direct quotes from my interview in publications and presentations in relation to this study.

By signing, this consent form I can confirm that I have read and understood the content and the main orientation of this research.

Name of the participant: ----------

Date: ----------

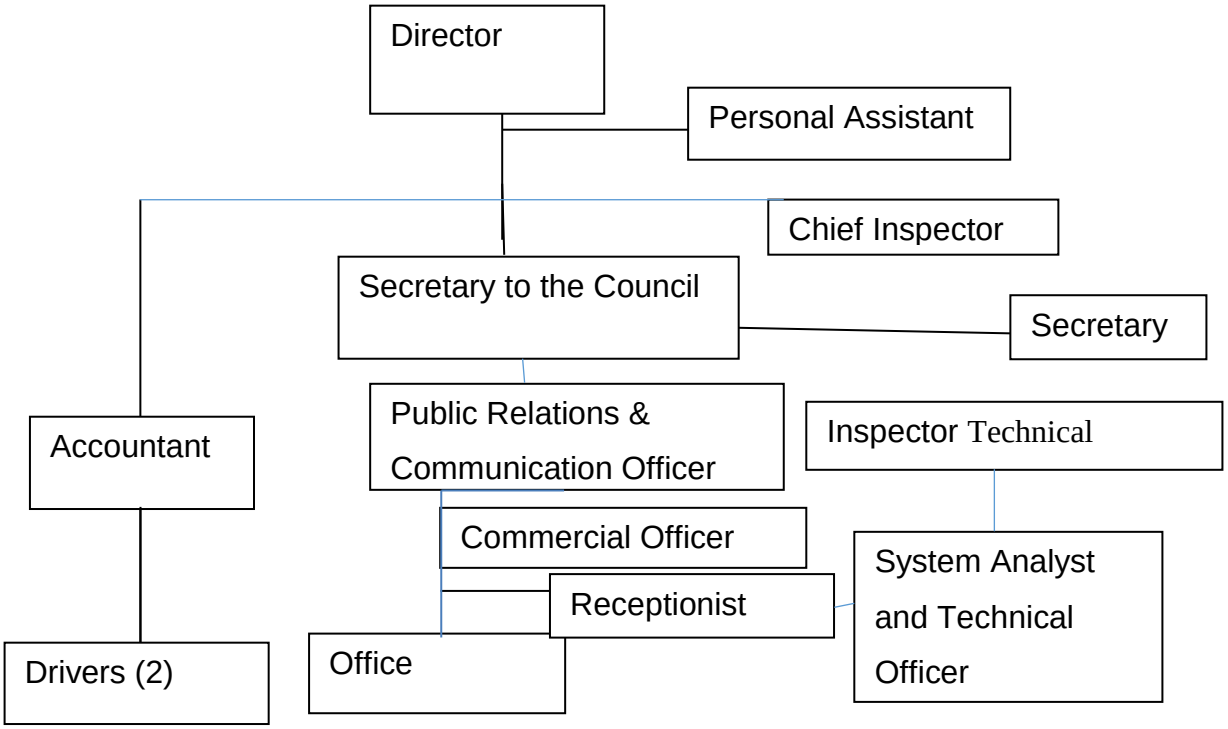
Signature: ----------

Researcher's Name: ----------

Date: ----------

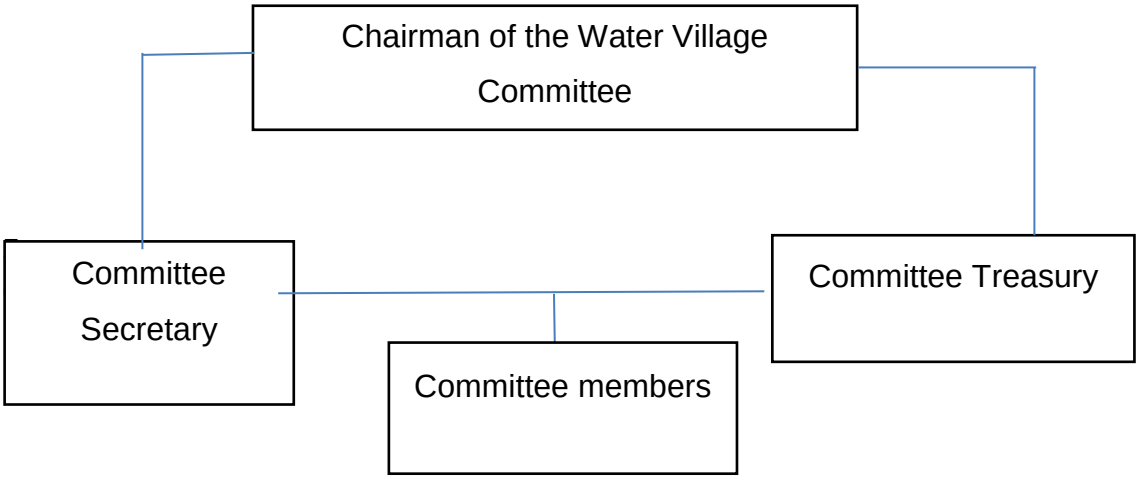
Signature: ----------

Appendix 2: ORGANISATIONAL STRUCTURE-NATIONAL WATER SUPPLY AND SANITATION COUNCIL (NWASCO) MANAGEMENT LEVEL



Source: NWASCO (2010)

Appendix 3: THE ADMINISTRATIVE STRUCTURE OF THE ZAMBEZI RURAL BASIN VILLAGE WATER COMMITTEE IN ZAMBEZI



Appendix 4: SAMPLE OF INTERVIEW FOR WATER POLICY

Date of interview: 20 June 2012
Location: Zambezi rural basin, Zambia
Research areas: institutions, and policy impacts

Introductory notes

This interview is being conducted as part of a research study investigating how institutions and policy have impacted poor people in the Zambezi rural basin of Zambia. Your contribution will support the process of data gathering to highlight the key issues surrounding policy and institutions in relation to the management of the water sector. As an expert in the field of policy and the institutions involved with the water sector, you may be asked, if necessary, to provide relevant documents (unpublished reports, technical materials) which could contribute to strengthening knowledge of the key research areas: institutions, policy, and policy impacts.

- **Could you kindly discuss what led to water policy being formulated?**

Policy was formulated as a result of the government's intention to review the water sector, and this saw subsequent changes to the policy framework governing the water sector. The first water Act was enacted in 1994, and it stated that water has to be given higher priority, and people have the right to access it at any time from the point of delivery. Drinking water was the core focus of this policy. This move by the government was highly appreciated and seen as a significant initiative. A number of meetings were held to gather information from policy makers and researchers to gain insights on how policy could help to sustain the water sector. The meetings discussed the, issues such as the involvement of rural people in the decision-making process which determines how policy should support rural water supplies for communities. The idea of the suitable water institutions for rural community was not discussed but it was highlighted by some few members at the meeting for the management of water.

- **What was the opinion of the government when such issues were raised?** The government has remained silent and emphasised that water policy has first to be formulated, and that the institution in charge will act as a regulator; there is no urgent need to have a separate institution managing the water sector at the rural level.

- **Do you think that current water policy is effective enough to sustain the water sector in the future? If so, what are the implications of policy on water supply?**

Yes, the current water sector is effective in the sense that it has provided a framework in which it can be managed in its entirety; for instance, there has been some degree of involvement from the private sector and nongovernmental organisations in the water sector, and the regulatory framework has been formulated to ensure that the water sector is managed effectively. But in some situations it can also be ineffective because water policy in its current format has some specific limitations, such as the failure of the rural water sector to encourage citizen participation in its activities. The implication is that the water sector is not performing well, and as a result policy implementation has been hampered in terms of water delivery.

- **What are the key areas of policy focus?**

Our key areas of policy focus include water supply, the regulatory framework, and the mode of delivery. Recently, the issue of water sustainability became part of the overall water policy framework, but its implementation still poses a critical challenge in terms of developing strategies which could support its delivery. The government has emphasised within its policy that water sector has to contribute to sanitation, and also has to ensure that safe and drinkable water is made available to all citizens. This remains the most critical area for policy makers and other stakeholders, but since water policy has been implemented the delivery of safe drinking water is still yet to be achieved due to the inadequate provision of safe drinking water in rural areas. Only a small proportion of rural areas throughout the country have access to safe and drinkable water. Despite the issue of water supply infrastructure being at the

heart of policy makers' interests, a number of water infrastructures have deteriorated over the past decade. We need to address this issue as part of a broader policy focus. However, from my own perspective, although water policy has been formulated, the environment has not been identified as a key area. Connecting water to households throughout the country is another area of focus which the government believes could support the supply of water to the general population.

- The regulatory system has also become an important part of the water sector because some progress has been made. **What does this progress involve, and could it be elaborated on**?

Progress has been made in terms of the development of guidelines which are currently being implemented for effective water management.

- **Do you believe that these key areas have been properly looked at during the implementation stage of policy?** Yes and no. Yes because, as stated above, water supply facilities have been installed specifically in urban areas, but in the rural areas of Zambezi rural basin, the supply of water still remained limited in terms of water supply infrastructures. What I can say is that in the rural areas progress in water supply facilities is still constrained by lack of clear water policy and efforts need to be made in order to attain full water recovery status.
- **What do you mean by full water recovery status?** This simply means that water facilities have to be operational and their supplies sustainable. In the current situation of the water supply, the Zambezi rural basin water recovery is also limited due to the ineffective policy and institutions.

- **How was the national institution constructed? Where does it draw its legitimacy from?**

The national water institution was constructed as a result of the formulated water policy and the urgent need to regulate, control and monitor the water sector in order to deal with the problems with water quality standards. It was also established to regulate the water sector through the provision of licences in an attempt to boost the supply of water in the country. However, what is important is that is that the institution was meant to support people at all levels of the society when it was established, and there was a general consensus that

the water sector has to be effectively managed. Although it draws its legitimacy from the water policy Act, the overall direction of water sector strategy is guided by the government because the state is the sole institution dealing with all water issues, and the national institution (NWASCO) is there to act on behalf of the government in implementing the rules governing the water sector.

- **How can the institution (NWASCO) be evaluated? In terms of its performance? What it does, how it does it? Does the citizen get more water? Or pay less?**

Once established, every institution has to be judged on how effectively it improves the lives of the people it serves. This is the same situation with water institutions across the world; in our particular situation, water institutions have been evaluated in terms of developed guidelines and the increase in private sector involvement in the water sector, particularly in urban areas.

- **Why is the situation like this?** The problem is that the guidelines developed for water institutions are generally applied to both rural and urban areas, and therefore there are no specific guidelines for either sector. This has affected the rural water sector tremendously in terms of water supply facilities and maintenance. At the moment, we do not have guidelines for the rural water sector. The guidelines have to be developed for rural water sector in order to improve the water supply.
- **Why do we need guidelines for specific sectors?** This would support the delivery of water activities in rural areas, and it would also help to provide opportunities to rural households and members of rural communities. They would be able to gain permits easily and have water supplies connected to their houses, which are not presently the case; these are areas that water institutions at the rural level have not yet managed to improve. The lack of effective guidelines for rural areas in the Zambezi rural basin has made the price of water go up, and constrained poor people's ability to access water at the rural level. However, if institutions implement better policies citizens could have easy access to water and pay less; this situation stands in contrast to the current situation. The price of water depends on how well institutions

have applied policies that meet the needs of the poor, but this can only be achieved if institutions provide citizens with opportunities to acquire water permit licences (which might increase the number of water service providers) and households are given opportunities to have water pipes fitted in their own homes. The issue of water connectivity still presents a challenge for policy and institutions. The price of water also has to be addressed at the rural level. However, corruption has also contributed to the decline of water facilities and services at the rural level because it has constrained the process through which licences for water are issued to households and members of the community. It has also affected the affordability of water and costs have increased in terms of the cost of maintaining water supply facilities for rural people. Do you have anything else to say? No,

Thank you for your contribution to this study.

Appendix 5: SAMPLE OF INTERVIEW FOR THE HOUSEHOLDS

Date of interview: 25 June 2012
Location: Zambezi rural basin, Zambia
Research areas: institutions, policy, and policy effect

Introductory notes

This interview is being conducted as part of a research study investigating how institutions and policy have impacted poor people in the Zambezi rural basin of Zambia. Your contribution will support the process of data gathering and highlight the key issues surrounding policy and institutions in relation to the management of the water sector.

As water users who have agreed to participate in this study and use water on a daily basis for your domestic and other activities, your experiences in this area are highly appreciated.

- **How is the water sector being managed? Do you think that you have enough water supplies in the Zambezi rural basin?**

The water sector is managed by the government which coordinates the water sector's activities, and this has impacted how water is delivered in our area.

- **Do you think that the management of water sector has been effective with the presence of National Water Supply and Sanitation Council (NWASCO)?** If it is not effective, why? People at the rural level are not involved in the management of the water sector and this creates a great challenge for the government to improve the water sector. The absence of an effective rural water institution to help the rural poor to access water facilities is not fully recognised by the government, and what we need is the presence of a strong institution at the rural level to help us manage our own water resources and address the challenges currently facing the water sector.

- **What could the role of this institution be?** The institution will have a mandate to coordinate the activities of the water sector and implement policies so that the water sector is well managed by the people using it, not people from the city who come and direct how water should be managed. This is one of the key institutional failures surrounding the provision of water for people in this area. In terms of having enough water, as you are aware water is a natural resource and is abundant in the area because the Zambezi rural basin of Zambia shares the Zambezi river with other countries such as Mozambique and Zimbabwe. Water is there, but the main problem is how to access it and make water supplies sustainable for long periods. The supply of water is very limited, because a larger number of the people living in this area have not yet been able to access water. For instance, at my own house, there is not even a single connection to a water tap and I always struggle to fetch water from other sources. I sometimes have to pay for water from the private providers.

- **What is the role of the Village Water Committee in the water sector** The role of the Village Water Committee should focus on coordinating water policy in order to improve the water supply in the Zambezi rural basin. As stated above, the community needs a strong water institution which fit well with the reality of water needs on the ground.
- **Do you believe that the Village Water Committee should replace it (NWASCO) ? yes,** because the Village Water Committee was created by members of the committee to help in terms of water activities However, it has no legal status which would allow it to implement policy and issue water licences. If this institution was given a legal status, it could significantly contribute to water sector activities and the water supply facilities in the area. This is a positive development, because it shows how committed this institution is.

- **Could you elaborate on the key activities that you use water for?** Regarding your question, water is used for domestic uses as our first priority and then for agricultural productivity. But the quantity of water is

not even enough to support these activities, because of the limited resources and the absence of suitable water facilities to sustain the water sector in the area.

- **Do you believe that the government has helped a lot in improving water supply ?** Not really, because we are still having problems with the affordability and cost of the water process which make the use of water very limited in terms of our domestic water activities.

- **What is the price of water?**
  The price of water is very important to us because if water is priced high then poor people like us will not be able to access clean drinking water. In our case, water is being priced by individual water vendors and other parties, and the price of water is increasing on a daily basis. The increase in price has constrained a number of poor people in our area and kept them from accessing clean drinking water; this has made some people become ill and succumb to diseases.
- **Why has the price of water been increasing?** This is because the owners of water supply facilities have informed us that making more water plentiful is associated with the maintenance of water facilities and the accessibility of clean water. If someone wants to drink water which is safe, he or she has to pay for it otherwise the individual will not be able to access it and consequently sanitation facilities will also be affected.
- **How did the Village Water Committee respond to the price increase?** The committee helped to negotiate with the owners of the water supply facilities, but the negotiations were very difficult to accomplish; however, an agreement was reached on price, so private water vendors now consider the status of people living in rural areas.

- **What is the status of water supply facilities in the area?**
  We believe that the water sector facilities in the area are not in good conditions because the state has neglected to properly maintain water supply facilities and this has consequently affected the water sector's delivery in the area. Most of the water supply facilities in the area have

been there for a long time, and their maintenance has become a matter of concern to local rural people.

- **How do you want the state to intervene?**
  The state should support water supply facilities and make sure that our facilities are renovated to continue the supply of water. This is what is missing from the policy of the state. For instance, the state used to intervene but we are now obliged to contribute to the maintenance of water supply facilities; however, some poorer people are not able to pay for the maintenance costs.

Thank you for participating in this short interview.

Appendix 6: INTERVIEWS CODING

Institutions and households

Institution A	
Code	The National Water Supply and Sanitation Council
A	Engineering Department of the National Water Supply and Sanitation Council
B	Policy Division of the National Water Supply and Sanitation Council
C	Administrative Division of the National Water Supply and Sanitation Council
D	Human Resource Section of the National Water Supply and Sanitation Council
E	Statistical bureau of the National Water Supply and Sanitation Council
F	Training and Development section of the National Water Supply and Sanitation Council
G	Water Management section of the National Water Supply and Sanitation Council
H	Regulation section of the National Water Supply and Sanitation Council
I	Statistical bureau of the National Water Supply and Sanitation Council
J	Regulation section of the National Water Supply and Sanitation Council
K	Regulation section of the National Water Supply and Sanitation Council

L	Policy Division of the National Water Supply and Sanitation Council
M	Policy Division of the National Water Supply and Sanitation Council
N	Policy Division of the National Water Supply and Sanitation Council
O	Policy Division of the National Water Supply and Sanitation Council
Institution: B	
Codes	Village Water Committee
A	Head of the Village Water Committee
B	Deputy Head of the Village Water Committee
C	Member of the Village Water Committee
D	Administration of the Village Water Committee
E	Member of the Village Water Committee
F	Member of the Village Water Committee
G	Member of the Village Water Committee
H	Member of the Village Water Committee
I	Member of the Village Water Committee
J	Member of the Village Water Committee
K	Member of the Village Water Committee
L	Member of the Village Water Committee
M	Member of the Village Water Committee
O	Member of the Village Water Committee

Households	
Codes	Gender
AA	Male
AB	Male
AC	Male
AD	Male
AE	Female
AF	Female
AG	Female
AH	Male
AI	Male
AJ	Male

Key words: Institution A: the National Water Supply and Sanitation Council

B: Village Water Committee